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ALGERIA... 6.00 Dn. Israel... 15.70 Dn. Norway... 4.00 N.S.
Austria... 17.5 S. Jordan... 12.00 Lira. Portugal... 200 Esc.
Belgium... 35 B.F. Kuwait... 1.00 Dn. Saudi Arabia... 4.00 R.
Canada... C.S. 1.10 Luxembourg... 360 Ffr. Spain... 166 Ptas.
Cyprus... 335 Mls. Lebanon... 1,500 L.L. Sweden... 6.00 S.Kr.
Denmark... 2.00 D.K. Liechtenstein... 2.00 Sfr. Switzerland... 1.50 Sfr.
Egypt... 100 P. Monaco... 200 Ffr. Turkey... 1.80 Lira.
Finland... 4.00 F.M. Netherlands... 2.20 D.G. U.S.A. (East)... 50 Cts.
France... 1.00 F. New Zealand... 1.50 Dn. U.S.A. (West)... 50 Cts.
Germany... 2.30 D.M. Norway... 1.70 N. Yugoslavia... 76 D.

ESTABLISHED 1887

Kremlin Readies New Missile Sites In East Europe

By Serge Schmemmann

New York Times Service

MOSCOW — The Defense Ministry announced Monday that preparations were under way in East Germany and Czechoslovakia for tactical nuclear weapons that would be stationed there if the Atlantic alliance went ahead with deployment of new medium-range missiles in Europe.

An announcement carried by Tass said, "These steps are of the nature of one of the planned response measures in case the American missiles are sited in Europe. They are directed at maintaining the equilibrium in the nuclear systems between the Warsaw Pact and NATO in Europe."

Similar statements by the East German National Defense Council and the Czechoslovak government were made public by Tass.

Soviet officials have threatened repeatedly over the past year, and explicitly since May, that one of the countermeasures to the impending North Atlantic Treaty Organiza-

tion deployments would be the emplacement of additional Soviet tactical rockets in Eastern Europe. The other responses that the Russians have threatened include terminating a moratorium, announced in March 1982, on deploying SS-20 medium-range missiles, and taking "corresponding measures" against U.S. territory.

Monday's announcement, which dealt only with deployment of new systems in Eastern Europe, came as little surprise to Western diplomats. Last week, the defense ministers of the Warsaw Pact held what they styled an "extraordinary meeting" in East Berlin and announced that they had made an unspecified decision on maintaining military balance in Europe.

The East German leader, Erich Honecker, and several Soviet officials in Europe had also intimated that countermeasures had been decided on and that they involved East Germany and Czechoslovakia. The brief Defense Ministry announcement did not specify what weapons would be deployed. It said that since the United States was completing preparations for deploying the new Pershing-2 and land-based cruise missiles in Western Europe, "the Soviet Union is compelled to adopt additional measures to ensure its own security and the security of its Warsaw treaty allies."

"In accordance with an understanding reached by the governments of the Soviet Union, the German Democratic Republic and the Czechoslovak Socialist Republic, preparatory work is being started on the territory of the GDR and Czechoslovakia for the deployment of missile complexes of operational-tactical designation."

Western experts in Moscow said the Russians appeared to be referring to the deployment of new tactical weapons that has been under way for some time. According to these experts, the Kremlin seemed to be using the impending Western deployment to justify a modernization of battlefield weapons that has, in fact, already begun.

The Western sources said the "operational-tactical" weapons to which the Defense Ministry referred were evidently new SS-21, SS-22 and SS-23 missiles, which would replace older Scud and Frog missiles. The SS-22 has a range of about 600 miles (965 kilometers), the SS-21 of about 60 miles and the SS-23 of about 200 miles.

As of early September, the sources said, the Russians already had 30 SS-21 missiles in Eastern Europe and were deploying an additional four per month. The nuclear warheads for these and the Scud and Frog missiles, the experts said, were believed to be stored near the launchers, and all were under Soviet operational control.

Soviet Will Attend Talks

The Soviet Union said Monday that it would attend an East-West disarmament conference in Stockholm in January, a few weeks after the scheduled deployment of U.S. medium-range missiles in Western Europe. The Associated Press reported from Moscow.



Rescuers continued the search Monday at the U.S. Marine compound in Beirut.

Weinberger Says Suicide Assaults Are Impossible to Defend Against

By Fred Hiatt

Washington Post Service

WASHINGTON — Secretary of Defense Caspar W. Weinberger has asserted that no defense could stop a suicide assault like the one that devastated a U.S. Marine headquarters company in Lebanon.

"Nothing can work against a suicide attack like that, any more than you can do anything about a kamikaze flight diving into a carrier," Mr. Weinberger said Sunday.

Congressional critics said the bombing, in which a truck loaded with explosives rammed past three guard posts and through a barbed-wire fence before detonating inside the headquarters building, should have been anticipated because it resembled so closely an attack on the U.S. Embassy in Beirut in April.

But Pentagon officials said the Marine mission in Beirut — to help keep the airport open and return the city to normal life — specifically ruled out constructing the kind of fortress barriers that might have protected the Marines.

A Marine Corps spokesman told The New York Times in Washington that the truck's driver had to get through the following barriers to reach the headquarters building: First, the truck crashed through the barbed-wire fence, built on anchored steel posts, which closed off the airport parking lot near the Marine headquarters.

[The driver was then said to have crashed through a relatively flimsy chain-link gate that was flanked by concrete walls and guarded by a sandbagged bunker usually manned by one or two Marines with rifles and grenade launchers.]

[The driver was then confronted with a steel sewer pipe two feet (60 centimeters) in diameter laid across a road not open to traffic that leads to the headquarters building. It was not clear to officials whether the driver somehow managed to drive over such an obstacle or tore it loose from its moorings and swept it aside before crashing through a final wall and cement barrier near the building entrance.]

Rather than trying to reinforce the Marines' position, Mr. Weinberger appeared to be leaning toward keeping more of them aboard their naval fortress — nine ships off Lebanon's coast — as the only way to protect them from sniping and random terrorist attacks.

The United States is also likely to reinforce that flotilla, in part to replace ships that were ordered away from Lebanon just over a week ago when the cease-fire there was holding. But U.S. naval forces are stretched around the world, and officials said it would be several days before reinforcements could reach the area.

In addition, Mr. Weinberger, who reportedly opposed the deployment of Marines to Lebanon

last year, argued strongly against adding to the U.S. contingent in the multinational peacekeeping force. An increase in the number of Marines in the force, Mr. Weinberger said, "certainly is not the answer."

"This force is not sent in to conquer Lebanon," he added.

Mr. Weinberger acknowledged that the bombing resembled the embassy attack last spring. But he said the Marine headquarters was an office building and could not be sealed off.

Pentagon officials said its vulnerability reflected the more general vulnerability of the Marines, who are guarding the Beirut airport from flat, low land, surrounded by hills and unable to strike back except in self-defense.

The officials added, however, that occupying the high ground east of the airport would endanger the Marines further.

As a result, the Pentagon was urging the White House to help protect the Marines by having them live on the U.S. ships offshore except when they are on patrol. With two companies deployed at the airport at all times and one in the Lebanese Scientific University, this would leave about 600 Marines ashore at any one time, compared with the 1,600 on land before Sunday's attack.

The Marines would be ferried between their ships and their duty stations by helicopter.

Shultz to Visit Europe For Talks on Lebanon

Compiled by Our Staff From Dispatches

WASHINGTON — Secretary of State George P. Shultz announced Monday that he would go to Europe this week for meetings with leaders from other nations participating in the multinational peacekeeping force in Lebanon.

The United States, France, Britain and Italy have about 5,000 soldiers deployed as a peacekeeping force in Lebanon. Mr. Shultz did not reveal the date or place of the meeting, but Italian officials said the meeting would take place in Rome.

Meanwhile, President Ronald Reagan said Monday that U.S. forces must remain in Lebanon to guard "vital interests" and the cause of world peace.

Speaking a day after at least 191 U.S. Marines and sailors and at least 23 French paratroopers were killed in guerrilla bombings in Beirut, Mr. Reagan denounced the attackers as "vicious, cowardly, ruthless" and pledged that they "will not go unpunished."

"The United States will not be intimidated by terrorists," he said.

Mr. Shultz also announced that the administration was sending a high-level mission to Israel next week to review the situation in Lebanon and "broader issues of Middle East security."

In a statement prepared for delivery to members of the House and Senate, Mr. Shultz said the administration planned these other moves:

• "Immediate replacement and strengthening" of the U.S. Marine contingent "so there is no gap in the performance of our mission."

• An intensified intelligence effort to "identify the perpetrators."

• Richard Fairbanks, a special Middle East envoy, will go to Geneva "to lend support and impetus" at a meeting of Lebanese political groups when they begin a national reconciliation conference.

• The Marine commandant, General Paul X. Kelley, will go to Beirut to "make urgent recommendations" on improving Marine security.

Mr. Reagan, in a statement and a question-and-answer session with 75 broadcast journalists carried on nationwide television, said the peacekeeping force must remain in Beirut "until the situation is under control" and the Lebanese government is able to restore its sovereignty.

"We have vital interests in Lebanon," Mr. Reagan said, "and our actions are in the cause of world peace."

"By promoting peace in Lebanon, we strengthen the forces for peace throughout the Middle East," Mr. Reagan said, adding: "To the extent that the prospect for future stability is heavily influenced by the presence of our forces, it is central to our credibility on a global scale."

A journalist identifying herself as the wife of a Marine officer asked Mr. Reagan what he would say to Americans frustrated with the loss of life Sunday. He clearly was caught off guard.

"I understand all Americans' concern," Mr. Reagan said. "I don't know of any job that's worse than the job I have, having to make the calls I have made as a result of the snipings that have taken place in the past."

Secretary of State Shultz and Secretary of Defense Caspar W. Weinberger went to Capitol Hill to brief legislators on the bombings. Some congressional leaders backed Mr. Reagan in his determination to keep the Marines in Beirut and not withdraw them "at the point of a gun."

Some senators and congressmen, however, urged the administration to admit that a mistake had been made and to withdraw the peacekeeping force. Some suggested that the Marines be replaced with United Nations forces or troops from the Third World.

Mr. Shultz said the U.S. government did not know who was responsible for the bombing of the Marine headquarters. He said Iran and Syria had denied responsibility, but he added that "it is not difficult to detect who are the enemies of peace in Lebanon" and listed Syria, the Soviet Union and Iran.

He said Syria "seems determined to make Lebanon once again a satellite or province of 'Greater Syria.'" He said the Soviet Union "arms Syria with the most sophisticated weapons and encourages its hegemonic policies," and that Iran was a "regime of fanatics with which we have had earlier experience."

Mr. Shultz said Lebanon was important not only to the United States as a key part of a region of vital strategic and economic importance, but also because, in the Middle East, it is "the second moderate country to negotiate a major agreement with Israel."

"I should not have to elaborate on what it would mean for the overall peace process and for Israel's long-term security if the assault on this moderate government should succeed," Mr. Shultz said. "Indeed, this is a major reason why that assault is taking place." (IHT, AP, UPI)

Mitterrand Visits Beirut; Death Toll Exceeds 200

By David Ottaway

and William Claiborne

Washington Post Service

BEIRUT — President François Mitterrand of France made a seven-hour surprise visit to Beirut on Monday to examine the devastated French and U.S. military bases. As rescue workers dug out more bodies from two buildings that were destroyed in suicide bombings Sunday, the death toll surpassed 200.

Meanwhile, U.S. Marines brought in replacements and sharply increased security at Beirut International Airport, where a truck laden with explosives had reduced a headquarters building to rubble.

Mr. Mitterrand met with President Amin Gemayel of Lebanon and other senior officials, but he made no public comment before returning to Paris aboard a French military aircraft.

Speaking on his return, Mr. Mitterrand pledged that French troops would remain in Lebanon despite their heavy casualties. Michael Dobbs of The Washington Post reported from Paris. The president said he had approved measures to increase security for the 2,000-man French contingent. The eight-story French paratroopers' quarters near the sports stadium in West Beirut was shattered by a car bomb.

As the removal of debris from the devastated sites continued, efforts to convene a national reconciliation conference of Lebanon's warring religious and political factions moved forward, with tangible signs that the meeting might take place as scheduled in Switzerland next Monday.

In Washington, Pentagon officials said 191 Marines and sailors had been confirmed dead, and French officials said that at least 23 French soldiers were known to have been killed. But 32 Marines were missing under tons of rubble in the collapsed Battalion Landing Team base, and 37 French soldiers of the multinational peace force were also listed as missing.

General Paul X. Kelley, the Marine Corps commandant, left Washington for Beirut on Monday "to pay my personal respects to our dead, to visit with some of those who have been seriously injured and, also, to visit with those that will remain." General Kelley has also been ordered by President Ronald Reagan to examine ways of improving protection for the U.S. contingent in Beirut.

Asked how he would respond if General Kelley said more U.S. troops were needed, Mr. Reagan said, "I would certainly take seriously a recommendation from the commandant of the entire Marine Corps," United Press International reported from Washington.

Replacements for the killed and wounded Marines were being flown into Beirut from Camp Lejeune, North Carolina, by way of Frankfurt, West Germany, in three C-141 transport aircraft, Marine officials said.

Adjacent to the destroyed Marine building at the edge of the airport, security was severely tightened to prevent a forced entry by another bomb-laden car or truck. For the first time, the Marines placed a two-and-a-half-ton truck across the auxiliary entrance to the operations section of the Marine Amphibious Unit. A machine with a 50-caliber machine gun mounted on the truck stood guard, and guards carefully checked all visitors.

At the site of Sunday's explosion, the worst in Lebanon's history, rescue workers wearing masks and rubber gloves grimly sifted through the rubble for the bodies of Marines buried under the shattered concrete.

Marine officers said they had no idea how long it would take to complete the task. They noted that in the bombing April 18 of the U.S. Embassy, the recovery of victims was not completed for 10 days.



President François Mitterrand visited French troops in Lebanon on Monday.

"We have to work slowly and carefully, because there is a danger of collapse of everything because structural integrity is suspect," said Captain Wayne James of the Marine Amphibious Unit. He said that although there were fire pockets in the basement and first two floors, it was doubtful that any survivors would be found.

Major Robert Jordan, the senior Marine spokesman said, "It is a long and tedious task. We have an entire building compressed into a very small space."

Marine officials said that a task force of the Naval Investigative Service had arrived to investigate the source of the bomb, but that no conclusions had been drawn.

Major Jordan said he had "some ideas" about who was responsible, but he refused to elaborate.

Lieutenant Colonel Hisham Jaber, a Lebanese Army liaison of-

(Continued on Page 2, Col. 2)

Despite Soviet Air Power, Afghan War Is Standoff

Resistance Continues, but Rebels' Growing Strength Is Offset by Disunity

By William Branigin

Washington Post Service

TERRI MANGAL, Pakistan — The Soviet MiG-21 and Sukhoi-17 jets banked high in the clear early-morning sky above this Afghan refugee camp, then bore down for the kill. With a roar, they dove almost vertically at the Afghan village just beyond a ridge marking the nearby border. Their bombs detached themselves and continued the steep trajectory as the planes pulled up sharply and veered off.

Plumes of smoke and dust rose over the hills from the area of the village that I had passed through the night before at the end of a recent visit to Afghanistan. Like many other mud-walled villages I saw, this one had been battered before. But people still lived there.

The only response to the dive-bombing jets was a few cursory bursts from an out-of-range heavy machine gun at this refugee camp. Beyond another ridge, more jets dived with impunity toward positions of anti-Soviet guerrillas besieging an Afghan government outpost.

The bombing was not unusual. In the Somali region north of Kabul, Soviet jets were in action nearly every day while I was in Afghanistan. The aircraft seemed to make no distinction between the Moslem guerrillas known as mujahidin and the Afghan civilian population that overwhelmingly supports them.

The jets also at times ignore the distinctions of national boundaries, occasionally bombing Afghan refugees — and even Pakistani villagers — inside Pakistan. Pakistan charged Oct. 7 that Afghan planes had bombed and strafed civilians inside Pakistan for the second time in three weeks.

Nearly four years after the Soviet Union intervened in Afghanistan and installed a government in Kabul under the Afghan Communist Party faction of President Babrak Karmal, Moscow's battle against the Afghan resistance has become in large part an air war.

The 105,000 Soviet troops occupying the landlocked Central Asian country are largely in defensive positions and appear to be relying increasingly on air support. The resulting bombardments in Afghanistan and violations of

neighboring territory by Soviet aircraft take place far from the kind of international spotlight that was recently thrown on the downing of a South Korean airliner that crossed into the Soviet Union's airspace.

The Soviet Army appears to have become bogged down in a frustrating stalemate. So far, it has proven unable to crush the mujahidin, who have grown steadily stronger. But the resistance groups' continuing disunity and lack of more effective weapons and tactics leave them incapable of driving out the Russians.

A major element in the current stalemate is that there are, in fact, three wars being fought simultaneously in Afghanistan. In extensive interviews, he talked of his strategy and hopes for unifying resistance groups and defeating the Russians.

The trip made me painfully aware of a major reason for the relatively paltry international coverage of Afghanistan: the difficulty of gaining access to the country. Since January 1980, when the Kabul government expelled a score of Western correspondents, myself included, few have been given visas.

The mujahidin, on the other hand, have taken a number of Western reporters on tours through the country. But the difficulty of getting to strategically important areas beyond the Pakistani-Afghan border zone and the fractured nature of the resistance make it difficult to report on the war.

Recent fighting, however, provides some examples of the stalemate. At the towns of Khowst and Organ south of here in Paktia province, Afghan guerrillas have been surrounded and besieged for months by local mujahidin, according to resistance sources. Soviet aircraft have been resupplying and reinforcing the garrisons, recently ferrying more than 4,000 Afghan soldiers into Khowst, these sources said. Soviet jets and helicopters have been pounding the

resistance.

It was a trip that took me across rugged mountainous terrain to the relative lushness and tranquility of the Panjshir Valley in Kapisa province north of Kabul. There the Soviet troops had agreed to an unusual truce with the mujahidin earlier this year after six unsuccessful attempts to occupy the strategically important valley in the Hindu Kush mountain range that bisects eastern Afghanistan.

It was in the Panjshir also that I met Afghanistan's most renowned guerrilla commander, Ahmed Shah Massoud. The leading strategist of a young generation of emerging resistance leaders, Mr. Massoud has been called the Che Guevara of Afghanistan. In extensive interviews, he talked of his strategy and hopes for unifying resistance groups and defeating the Russians.

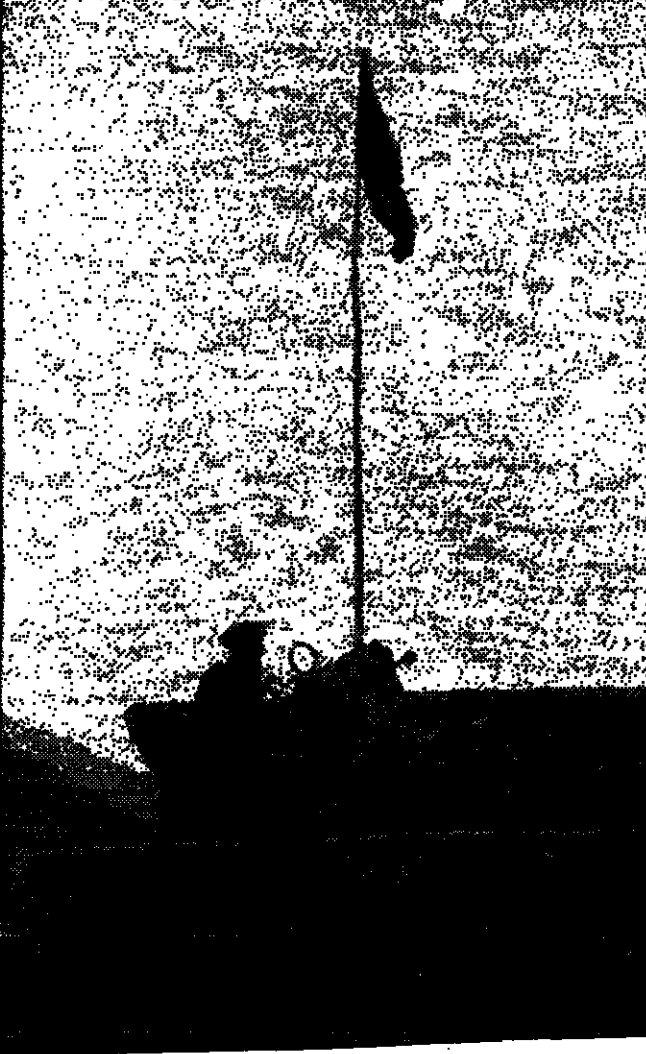
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resistance.

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An Afghan guerrilla wearing a captured Soviet uniform mans a heavy machine gun beneath his organization's flag.

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Long List of Crises Seems to Stretch Washington's Resources

By Don Oberdorfer

Washington Post Service

WASHINGTON — The bombing Sunday of the U.S. Marine compound in Beirut produced a new crisis for U.S. foreign policy at a time when other aspects of the Lebanese problem and a long list of dangers elsewhere have stretched thin U.S. diplomatic and military resources.

The blast also caught the Reagan administration at

NEWS ANALYSIS

a moment when key policy-makers concerned with the latest crisis are changing jobs at almost every level.

Included are a new White House national security affairs adviser, a yet-to-be-named new special Middle East negotiator, a new U.S. ambassador to Lebanon, and a new assistant secretary of state for Near Eastern affairs.

On Friday, Oct. 14, and again Tuesday, President Ronald Reagan and the top echelon of his foreign policy team met in the situation room of the White House as the National Security Planning Group to survey the course ahead in Lebanon and the Middle East.

A tangible result of the discussion, according to administration sources, was a presidential decision last Tuesday that the Marines' mission and personnel strength in Beirut should remain unchanged, despite

Pentagon reluctance to leave the troops in their exposed positions.

The policy-makers' concern had been heightened by a threat that developed shortly before the Oct. 14 meeting: For the first time, the Marines in Beirut were conscious and definite targets of attack, in this case by snipers.

The sniper threat, which took the lives of two Marines last week, was different from earlier incidents in which U.S. troops were caught in shelling that might not have been aimed specifically at them.

Although as late as Friday the State Department refused to acknowledge publicly that targeting of the Marines created a new, more hazardous situation, officials said Sunday that U.S. diplomats were active in recent days in seeking to investigate and diminish the threat attributed to radical Shiite Moslem groups.

Despite the ominous development on the ground, there was optimism late last week that the long-delayed political process of reconciliation among contending groups in Lebanon would begin soon in Geneva.

The administration feels strongly, officials said Sunday, that this should proceed and that there is no reason to expect that the killings of Marine and navy personnel and of French forces will interfere.

For the U.S. government and people, the death of so many servicemen in one day is a catastrophe but, in the killing ground of modern Lebanon, the death toll is not startling.

About 50,000 Lebanese and Palestinians, mostly civilians, were killed in the seven years of civil war after 1975, according to rough estimates. Another 17,000 were reported killed last year after the Israeli invasion of Lebanon, and the casualties continued this year in battles among Lebanese groups.

The basic results of the still-incomplete White House policy review, as far as Lebanon is concerned, are to be announced in a speech Thursday night in Philadelphia by Deputy Secretary of State Kenneth W. Dam to the American Jewish Committee.

Mr. Dam was designated for the job because Secretary of State George P. Shultz had planned to be on a trip to El Salvador and Brazil, a trip postponed after the bombings in Beirut.

Mr. Shultz's postponement of a visit to El Salvador because of an even more urgent problem in Lebanon symbolizes the strain on U.S. policy in a period of severe global and regional tension.

A U.S. flotilla recently was redirected from Central America toward the Gulf as the war between Iran and Iraq flared with new threats to oil routes.

Another U.S. naval task force, which had backed up the Marines in Beirut from offshore positions, left the Mediterranean after the Sept. 26 Lebanese cease-fire, lingering to show the flag near the Gulf on its way to Asian waters.

Last week, still another U.S. naval task force heading for Lebanon was diverted to the Caribbean when a

coup in Grenada appeared to endanger U.S. residents and interests.

In addition to Lebanon, the Gulf and Grenada, crisis spots include:

• Nicaragua, where CIA-supported guerrilla forces have stepped up attacks on petroleum facilities and the leftist Sandinista government has called for outside military assistance.

• Korea, where North-South tensions remain high after the Oct. 9 explosion that killed the top rank of the South Korean cabinet during a visit to Rangoon, Burma. South Korea has blamed the bombing on North Korea.

• The Philippines, site of important U.S. military bases, where the rule of President Ferdinand E. Marcos may be imperiled by public and political reaction to the assassination Aug. 21 of a key opposition leader, Benigno S. Aquino Jr.

Meanwhile, demonstrations continue in Western Europe over the scheduled deployment of U.S. nuclear missiles beginning in December.

As the backdrop for all of this, relations between the United States and Soviet Union have sunk to the lowest point in more than a decade after reactions in the two capitals to the Soviet downing Sept. 1 of a Korean Air Lines passenger jet.

The unusual degree of tension between Washington and Moscow has generated an unusually poisonous atmosphere of superpower hostility in a crisis-ridden world.

Legislators Want Reagan to Explain Purpose of U.S. Presence in Lebanon

The Associated Press

WASHINGTON — Members of Congress demanded Monday that the Reagan administration provide a clear explanation of the U.S. purpose in Lebanon. But most stopped short of calling for an immediate withdrawal of forces.

"I don't think it is a time for Americans to back down from terrorism," said Representative Thomas P. O'Neill Jr., Democrat of Massachusetts and speaker of the House. "But I think it is time we give the reasons we're over there."

"The president needs to clearly define for the American people why their boys are being sent to die in Lebanon," the Senate minority leader, Robert C. Byrd, Democrat of West Virginia, told the Senate. The Senate majority leader, Howard H. Baker Jr., Republican of Tennessee, predicted a congressional reexamination of U.S. policy in the Middle East as a result of the bombing that devastated Marines in their barracks at the Beirut airport early Sunday.

"We must find a way to share the burden of peacekeeping," Mr. Baker said. "We should not leave at the point of a gun and I would stoutly resist that."

He said his main duty was to "try to keep this thing from turning into a political football." The bombing, the worst U.S. military loss since the Vietnam War, came four weeks after the Senate completed congressional action on a resolution authorizing the Marines to remain part of the four-nation peacekeeping force in Beirut for 18 months more.

Senator John G. Tower, Repub-

lican of Texas, said the Armed Services Committee, which he chairs, will hold a hearing Tuesday on administration plans to improve the security of the Marines in Lebanon.

But he rejected criticism that the U.S. forces do not have a clear mission. "It is clear that our function is to try to create a climate in which a political settlement is possible," he said.

Representative Clarence D. Long, Democrat of Maryland, chairman of the House Appropriations Committee, prepared legislation that would force President Ronald Reagan to bring the troops home. "It's awfully easy for old men to tell young men to go out and die for someone's vanity, and that's what this amounts to," he said.

Senator Edward M. Kennedy, Democrat of Massachusetts, raised in a brief Senate speech a point that was repeated throughout the day on both sides of the Capitol — that the first priority must be to assure the safety of the U.S. forces. He denounced as preposterous the administration contention that that already had been done.

■ War Powers Issue

Stuart Taylor Jr. of The New York Times reported earlier from Washington:

With the ink barely dry on compromise legislation giving President Reagan carefully limited authority to keep Marines in Lebanon for 18 months, Sunday's bombings in Beirut raised anew the question of what military steps Mr. Reagan could legally take.

Congress asserted in the legislation, which Mr. Reagan signed Oct. 12, that any substantial expansion in the size or role of U.S. armed forces in Lebanon would require a new approval from Congress. Mr. Reagan had earlier said that "it would be my intention" to comply with the requirement.

Although the administration said Sunday that it had no plans to expand the Marines' role or withdraw them, Mr. Reagan has in the past carefully hedged his commitment to abide by congressional limitations on use of the armed forces.

He insisted obliquely in his Oct. 12 statement that he had the power to keep the Marines in Lebanon without congressional approval. He hinted that the central provision of the War Powers Act of 1973, which requires the president to "terminate" the use of armed forces in "hostilities" in 90 days unless Congress authorized longer involvement, was unconstitutional.

The Reagan stand is vigorously disputed by congressional leaders. The dispute was pushed into the background by the compromise legislation, where it will probably remain as long as a majority in Congress approves of Mr. Reagan's military actions, in particular, his response to the bombings Sunday.

There could be a constitutional confrontation if Mr. Reagan lost congressional support for his actions, if he embarked on military escalation without congressional approval or if Congress directed him to withdraw the Marines from their vulnerable position and he refused.

Mitterrand Visits Beirut; Toll Exceeds 200

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ficer attached to the Marine force, said, "Until now we don't have any evidence — just suggestions."

Mr. Mitterrand, during his brief visit, attended a memorial Mass for the French soldiers killed in Sunday's blast, and had lunch with senior officers of France's 2,000-man peacekeeping force. He also stopped by the U.S. Marine base and paid his respects to the American dead.

After meeting Mr. Gemayel at the former residence of the French ambassador, he was seen off at the airport by Prime Minister Shafiq al-Wazzan, Defense Minister Issam Khuri and the army commander, Ibrahim Tannous.

The French company that was bombed belonged to the first para-trooper regiment based at Pan, France. It was made up entirely of young conscripts, none of whom had reportedly ever seen any action before. At the time the car bomb was driven into the building by a suicide driver, about 30 members of the company were reported to have been away on patrol or guard duty and thus to have escaped unharmed.

The others were either having breakfast or just waking up when

the blast went off, minutes after the even larger explosion rocked the U.S. Marine compound at the airport.

Rescue workers said one dead officer was pulled out of the rubble still bent over in the act of lacing his boots when the building collapsed and crushed him.

In London, the foreign secretary, Sir Geoffrey Howe, announced that the commander of British land forces, General Sir Frank Kitson, was flying to Beirut to review security arrangements for the British contingent in the multinational peacekeeping force.

In a statement to the House of Commons, Sir Geoffrey said there were no plans to change the size or role of the 100-man British unit following Sunday's bombing attacks. But he added that all aspects of peacekeeping force "will now have to be reconsidered by all those contributing to the force."

Sir Geoffrey said that with national reconciliation talks among the Lebanese factions scheduled to begin in Geneva next week, "it is now all the more important for all parties... to get together to settle their differences by negotiation."

Meanwhile, the leader of the Druze militia, Walid Jumblat, said that although he expected to attend the national reconciliation conference, which the Swiss Foreign Ministry said would begin at the Intercontinental Hotel in Geneva next Monday, there would be an early dispute over the seating arrangement of the conference table.

In an interview in Amman, Jordan, with Reuters, Mr. Jumblat said, "The seating arrangement for the Lebanese opposition group, President Gemayel and the Lebanese Forces, as well as Saudi Arabia and Syrian mediators, must be made in such a way as to give each of them its proper role."

Mr. Jumblat said he would meet later this week with other leaders of the leftist National Salvation Front to complete a position paper for the

conference, which was envisioned in the Sept. 26 cease-fire. When asked about Mr. Gemayel's plans to make an opening speech at the conference, Mr. Jumblat replied, "This is not the time for speeches but for solving the basic problem."

■ Syria, Iran Deny Role

The Syrian and Iranian governments rejected U.S. suggestions that they were involved in the bombings. The Associated Press reported from Damascus:

Hours after Sunday's attacks, the U.S. defense secretary, Casper W. Weinberger, said circumstantial evidence "points in the direction of Iran" as the perpetrator. President Reagan implied the same at a Washington news conference Monday.

The chief White House spokesman, Larry M. Speakes, said a possible Syrian connection with the attacks was being explored.

Tehran's official Islamic Republic News Agency, in a dispatch received in Moscow, Cyprus, quoted an Iranian Foreign Ministry spokesman as denying any Iranian role in the bloodshed.

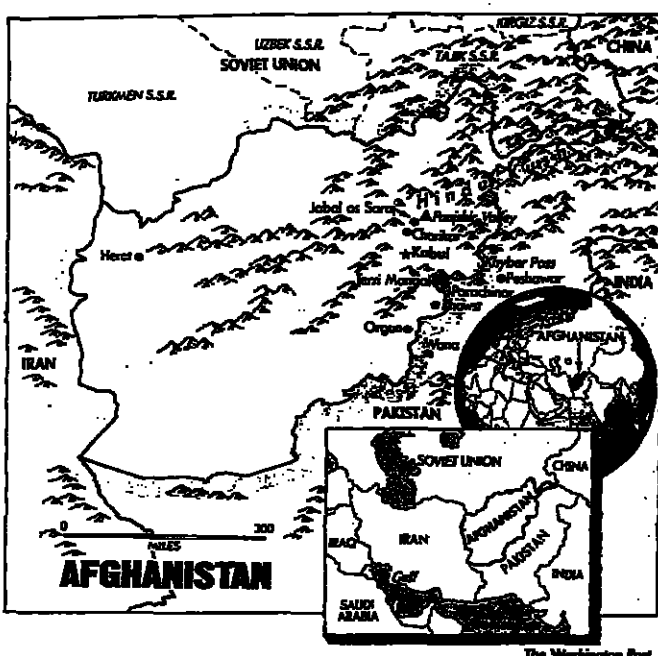
Syria's official Syrian Arab News Agency quoted an "official Syrian government source" as denying the "insinuations voiced by some American officials against Syria."

Iran's Shiite Moslem revolutionary government has ties to Shiite extremists in Lebanon, and the Syrian government has supported Moslem leftist groups in Lebanon's civil wars. Iran and Syria are themselves closely allied.

Ceausescu Arrives in Cyprus

The Associated Press

LARNACA, Cyprus — President Nicolae Ceausescu of Romania arrived here Monday for a two-day visit to Cyprus on the final leg of a tour of the Middle East.



Despite Soviet Air Strength, Afghan Conflict Is Standoff

(Continued from Page 1)

mujahidin positions relentlessly, but Soviet troops have stayed away from the fighting.

The battles have attracted more than the usual press coverage, since they are fairly close to the Pakistani border and mujahidin jeeps can get very near the towns. The mujahidin thus stood to gain prestige and perhaps capture sizable amounts of equipment if they took the towns. But the strategic value of doing so is questionable.

If the towns fall, the Russians are considered likely to bomb them flat, and the mujahidin are unlikely to hold them. For some analysts, the battles for the towns exemplify the Afghans' tendency to spend a great deal of time, effort, ammunition and lives besieging relatively easy targets in a way that exposes them to air strikes.

There are exceptions. A number of younger guerrilla commanders have shown talent in planning and staging hit-and-run raids against important targets, with devastating effects.

Yet the standoff continues. In large part it is a draw between an old-fashioned but dedicated and courageous resistance and the modern equipment, superior firepower and air force of a superpower. Other observations based on travels inside Afghanistan and in the border area of Pakistan include the following:

• The mujahidin control vast expanses of the country in which popular support for them appears unwavering. In these areas, which Pakistan-based diplomats say cover most of Afghanistan, one can travel great distances without ever seeing any evidence of the government.

• It is much more difficult for Soviet and Afghan government forces to move on the ground than when I visited Afghanistan for three weeks just after the December 1979 invasion. Then, for example, there was no serious resistance inside Kabul, and I was able to go by car up the road north of the city through Chakir without seeing any sign of trouble. Now that area is a battleground, and the guerrillas regularly stage raids into the capital.

• Despite nearly four years of Soviet occupation, the Karmal government has made no apparent progress in consolidating its tenuous grip on power. By all accounts, the government is riddled with informants, the Afghan Army con-

tinues to be unreliable and draftees keep deserting in droves. On a number of occasions during my trip, I came across Afghan Army defectors who had just escaped from their bases.

• While the mujahidin fear and respect Soviet air power, their increased familiarity with their enemy has bred a measure of contempt for the fighting abilities of Soviet soldiers. Reports of low morale, drug and alcohol abuse, and poor motivation among Soviet troops appear to be borne out by examples of ineffectiveness in combat.

• Aside from humanitarian assistance to Afghan refugees, U.S. aid to the resistance is scarcely visible. This has led a number of guerrilla leaders to criticize Washington for allegedly not doing enough to help the mujahidin. While not directly supplying arms to the resistance, the United States is believed to be discreetly financing purchases on the international arms market and helping with logistics for deliveries from foreign countries, such as Egypt, that have stocks of Soviet weapons.

• The mujahidin inside Afghanistan are much better armed and organized than they were a few years ago. But their effectiveness may have reached a plateau that they cannot surmount without unity, more advanced arms and better organization. Major problems are rivalries and even outright warfare between some guerrilla groups, a shortage of good commanders and a continuing lack of effective anti-aircraft weapons, heavy arms and communications equipment.

• The Afghan resistance is growing increasingly concerned about the situation in Pakistan, where opposition groups have been staging protests against the martial-law government of President Mohammed Zia ul-Haq. The Afghans see the Pakistani opposition as indifferent, if not openly hostile, to their cause and likely to seek an accommodation with the Soviet-installed government in Kabul if it comes to power.

• The presence of more than two million Afghan refugees inside Pakistan has not developed into the political danger that Pakistani authorities once feared. The refugee outflow has apparently leveled off. And apprehensions that the refugees would become the "Palestinians" of Pakistan have been allayed by their integration, so far largely successful.

Next: The Mujahidin Trail.

WORLD BRIEFS

Iraq Predicts End of War With Iran

BAHRAIN (Reuters) — Iraq said Monday that the current Iranian offensive in the Kurdish mountains of northern Iraq would be the last battle of the three-year Gulf war and that the Iranians would be defeated. Baghdad's war communiques said more than 5,000 Iranians had been killed and dozens of tanks and other pieces of equipment destroyed. Meanwhile, government newspapers in Baghdad said Iraq would continue air and missile strikes on targets deep in Iran.

Iran says its troops have captured 700 square kilometers (270 square miles) of Iraqi territory since it launched the offensive last week and have driven Kurdish rebels out of 100 square kilometers of mountain territory inside Iran.

3 Danish Parties in Accord on Budget

COPENHAGEN (AP) — Denmark's center-right minority government, after a week of difficult negotiations, has backing Monday for economic policies reversing two decades of growth in public spending.

Prime Minister Poul Schlüter of the Conservative People's Party had threatened to schedule early national elections if he could not work out a compromise on budget issues with two parties whose votes are needed for a majority in the nine-party Folketing, the Danish parliament.

Monday's compromise with the center-left Liberal Party and the right-wing Progress Party ensured a reduction in real terms, for the first time in 20 years, in the Danish budget.

UN Head Decries Cambodia Situation

UNITED NATIONS, New York (UPI) — The UN secretary-general, Javier Pérez de Cuellar, said Monday that the situation in Cambodia was deteriorating in the absence of progress toward a peaceful settlement of the Vietnamese occupation of the country.

In a report to the General Assembly, Mr. Pérez de Cuellar said the interest of the Cambodian people would be "best served by a peaceful solution reached through a process of genuine negotiations." He added, "I am convinced that the continued absence of concrete progress toward that goal can only generate further tension and bring about a new deterioration of the situation."

Vietnamese troops invaded Cambodia in late 1978 and overthrew the government of the Khmer Rouge leader, Pol Pot. At least 800,000 Vietnamese troops are occupying the country. The assembly voted resolutions in 1979, 1980 and 1981 calling for withdrawal of foreign troops from Cambodia, the restoration of sovereignty and territorial integrity, and the right of the Cambodian people to self-determination. The assembly will again debate the situation Tuesday.

Philippine Activist Assails U.S. Bases

MANILA (UPI) — A government opposition leader, former Senator José Diokno, said Monday that U.S. military bases, including Clark Air Base and Subic Bay Naval Base, should be dismantled because they make the Philippines "a primary target in the event of a nuclear war between the superpowers."

Mr. Diokno also said a permit to stage a protest in front of the U.S. Embassy at the end of a three-day conference on nuclear war had been rejected by Manila officials. However, he said the Supreme Court ruled Monday that the city must justify its blanket denial of rally permits as opposition groups. If the court overrules the city, it will open the way for more and better-planned anti-government rallies, Mr. Diokno said.

Also on Monday, the court ordered the government to release from custody the mother and sister of the alleged killer of the opposition leader Benigno S. Aquino Jr.

Papandreu Warns of a Conspiracy

ATHENS (NYT) — Prime Minister Andreas Papandreu said in an interview published Monday that Greek and international rightist interests were conspiring to overthrow his Socialist government by undermining the economy.

In an interview with the pro-government daily Ta Nea, Mr. Papandreu said the campaign was being aided by the rightist press in Greece and was aimed at ending his independent foreign and economic policies. He said a \$120-million fund had been set up "to undermine confidence in our economy."

"I don't know what form this will take, what name it will have, but it is undoubtedly poison poured out to undermine our economy and of course our government," the prime minister said.

Mr. Papandreu said he was sure the efforts would fail.

Swiss Shift Slightly to Right in Voting

BERN (AP) — The conservative Radical Democrats outpolled the Social Democrats for the first time in 58 years in Sunday's Swiss parliamentary elections, according to incomplete but conclusive returns Monday. Final results are expected Tuesday.

The slight shift to the right, expected in most private analyses, did not, however, significantly change the makeup of the 200 seats in the National Council, or lower house of the Federal Assembly. The latest projections predicted the Radical Democrats would win 25 percent of the vote, up from 24.1 percent in the election four years ago. The Social Democrats slipped below the 24.4 percent they polled in 1979. The Radical Democrats, who last had polled the biggest share of the votes in 1925, were expected to have 54 seats, a gain of three, against 48 for the Social Democrats, a loss of three.

The complex Swiss voting system, in which one ballot can list candidates of several parties, saved from estimates, but the two other major parties, the Christian Democrats and the People's Party, appeared to have held their own.

The biggest loser was the Communist Party, which held only one of its three seats.

Georgia Gunman Called Fit for Trial

AUGUSTA, Georgia (UPI) — A man who took five persons hostage at the Augusta National Golf Club and demanded to meet with President Ronald Reagan was declared fit Monday to face charges of threatening the president.

Charles R. Harris, an unemployed millwright, was transferred Monday from University Hospital to the Richmond County Jail after a doctor determined he was mentally and physically fit to appear in court. He had complained of chest pains after his arrest Saturday. In addition to the charge of threatening the president, Mr. Harris could be charged with possession of a firearm in the commission of a felony and assault on a federal officer. He also faces state kidnapping charges.

Mr. Reagan was playing golf at the club when Mr. Harris took two presidential aides and three other persons hostage Saturday at the club's pro shop. He demanded to talk with the president, who aides said was never in any danger.

Talks on Air Safety Are Deadlocked

NEW DELHI (AP) — Representatives of international airlines meeting here Monday were deadlocked on the wording of a proposed air safety resolution that mentions the shooting down of a South Korean airliner last month, conference officials said.

The resolution was deferred for procedural reasons until Tuesday, the second and final day of the 39th annual general meeting of the International Air Transport Association, Director General Kurt Hammarfeldt said. The resolution, submitted by the IATA executive committee, said the association pledged its full support to efforts "to maximize safety in the air."

Debate bogged down over a passage that said the resolution should be approved, "considering the use of force against civil aircraft, such as the tragic incident involving the KAL flight 007 on September 1, a matter of the gravest concern affecting air safety." Delegates could not agree whether to leave the wording the way it was, expand it to include other such acts or delete the reference to the shooting down of the Boeing 747 by the Soviet Union with the loss of 269 lives.

For the Record

UNESCO delegates will gather Tuesday in Paris for a six-week general conference during which, confrontations are expected over the environment, communications issues and human rights questions. (AP)

General Gaetan Duvalier, the president of Togo, met briefly with President Ronald Reagan on Monday in Washington. He is visiting the United States to encourage U.S. investment in Togo. (AP)

Striking teachers in Chicago voted Monday on a tentative agreement that would let classes resume Tuesday. The 15-day walkout has been the longest in Chicago public school history. (AP)

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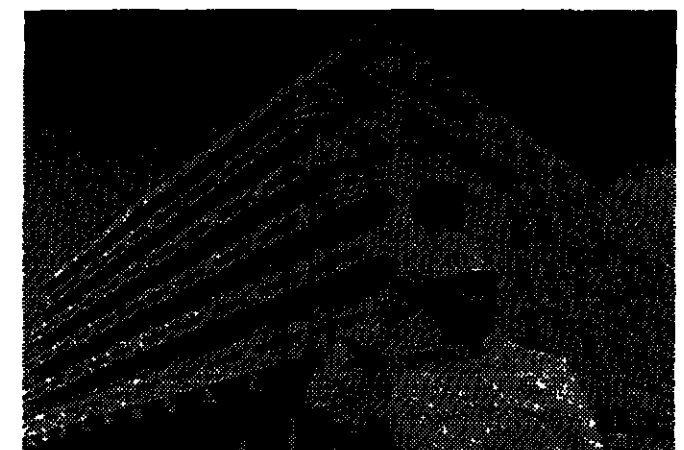
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Hundreds Arrested in U.S. During Anti-Nuclear Rallies

(Continued from Page 1)

asserted that most people in Belgium and West Germany were against the new missiles.

But in Bonn, Chancellor Helmut Kohl said that no protest action would divert his government from carrying out its pledge to deploy the missiles, a spokesman said.

"We are not only pledged by the promise of the previous government, but also have a clear mandate from the compelling vote of the German electorate in the election of March 6," Mr. Kohl was quoted as saying.

In the United States, protesters said three of the sites chosen for Monday's protests — the Seneca Army Depot in Romulus, New York, the Savannah River Plant in Aiken, South Carolina, and the AVCO Systems Division plant in Wilmington, Massachusetts — play a role in the production or storage of nuclear missiles.

At the Romulus depot, protesters began climbing over the fence after an attempt to blockade the main gates failed to halt work. Among the fence-climbers was Dr. Benjamin Spock, 80, author of a perennial best seller on infant care and a longtime anti-war activist, who was helped over the six-foot (1.8-meter) fence by two women and was eased down on the other side by two military police officers. (AP, UPI, Reuters)

هكذا في العمل

High Court Appears Receptive To Eased Church-State Barrier

By Linda Greenhouse

New York Times Service

WASHINGTON — Among the items on the Reagan administration's agenda of "social issues" only one, the effort to promote religion in American life, has made headway at the Supreme Court.

The court has been cool to the administration's views on civil rights and abortion, but more receptive to arguments for lowering

NEWS ANALYSIS

constitutional barriers between church and state. In decisions last term, it agreed with government lawyers that neither Nebraska's salaried legislative chaplain nor Minnesota's tuition tax deduction, which benefits mainly parochial schools, violated the First Amendment's prohibition of Congress

flouting laws on the establishment of religion. Now the administration has asked the justices to take a giant step across the line dividing church and state and let Pawtucket, Rhode Island, continue its 40-year-old practice of including a nativity scene in an official Christmas display. That the Justice Department decided to join a local dispute, which the high court heard earlier this month and apparently hopes to decide before Christmas, is a measure of this government's determination to restore a religious fiber to American life.

Last year, the administration pushed cases involving religious observance of a general nature.

Nebraska's chaplain, for example, offered nondenominational prayers that avoided references to Christ. This time, the administration is asking the court to endorse the governmental display of a fundamental symbol of a particular religion, Christianity.

In his argument, Solicitor General Rex E. Lee did not rely on the analysis put forward by Pawtucket's lawyer — that Christmas nowdays is a "secular folk festival" so removed from its religious roots as to barely raise a constitutional question. Rather, Mr. Lee told the justices that Christmas is rooted in religion as "a matter of undeniable historical fact," and that to read the constitution as requiring the exclusion of that fact "from our national consciousness is nothing less than intellectual and historical dishonesty."

It would be, he said, "cultural censorship." That view is not shared by the National Council of Churches, the one mainstream Christian organization to file a friend of the court brief. The council contended that government sponsorship "degrades and secularizes a sacred symbol of Christianity."

The administration went to some length to put its position before the court, since the rules require every friend of the court to identify its "interest" in a case and the government's stake in Pawtucket's crèche was not obvious. Thus, the administration's brief opened with an essay about how the government "from the earliest days of the republic to the present" has felt free to "recognize that religion is a part

of our heritage and should continue to be an element in our public life and public occasions."

The issue, then, goes beyond the content of a Christmas display. It is the Reagan challenge to the way the Supreme Court has analyzed the First Amendment's prohibition on Congress against establishment of religion. Beginning with *Lemon vs. Kurtzman*, a 1971 opinion by Chief Justice Warren E. Burger striking down a state parochial aid plan, the court has applied a three-part test to laws challenged under the establishment clause. A law will be upheld only if it: reflects a clearly secular legislative purpose; neither advances nor inhibits religion as its primary effect; and avoids excessive governmental entanglement with religion.

In the Pawtucket case, which was brought by the American Civil Liberties Union, both the Federal District Court and the 1st U.S. Circuit Court of Appeals ruled that the crèche lacked a secular purpose and so failed the test. On appeal, the government is asking the court to set aside the test in this case and take a fresh look at the crèche as one of many symbols of a recognized national holiday.

That approach may be welcomed by justices who are restive with the three-part test. They applied it only half-heartedly in upholding Minnesota's tuition tax deduction, and not at all in upholding the Nebraska legislative chaplain. If a majority agrees the test has outlived its usefulness, the crèche dispute gives the court the chance to announce a new approach.



An videotape showing the arrest last year of the automaker John Z. De Lorean, left, by FBI agents, who are handcuffing him, was broadcast Sunday night by the CBS network.

CBS Shows Tape of De Lorean's Arrest After Court Refuses to Bar Broadcast

Compiled by Our Staff From Dispatches

LOS ANGELES — An FBI videotape showing the automaker John Z. De Lorean examining contents of a suitcase purportedly containing cocaine was broadcast nationally Sunday night by CBS News, which had won a court battle about the tape earlier in the day.

The tape is thought to be key government evidence against Mr. De Lorean, who is facing trial on drug-trafficking charges. An attorney for Mr. De Lorean had warned that showing the tape would "unleash a circus unprecedented in court history."

Mr. De Lorean was arrested in Los Angeles in October 1982. The tape showed Mr. De Lorean lounging on a couch in a hotel guest room and talking to a man sitting across from him, who is barely visible. Another man, identified in the CBS telecast as an undercover agent, entered carrying a suitcase, which he placed on a coffee table and opened.

"This is the other half that is going out of here as soon as we are done," the man is heard to say, and he added, "Between this and the other I'll generate, uh... about four and a half, not less than four and a half mil."

Mr. De Lorean responded, "Good as gold. Gold weighs more than this, for God's sake."

Then the suitcase is put out of sight, a champagne cork is popped and Mr. De Lorean raises his glass

in a toast. "Here's to... lot of success," said the man identified as an agent.

Then another man entered, identified himself as an agent of the Federal Bureau of Investigation and arrested Mr. De Lorean, who put his arms behind his back to be handcuffed.

"Hi, John. I'm Jerry West of the FBI," the agent said. "You're under arrest for narcotics smuggling violations. Would you stand up, please?" Mr. De Lorean responded, "I don't understand," but stood. He was handcuffed and sat back down again, where he was read his rights.

At the local CBS station in Los Angeles, KNXT, five minutes of tape segments were broadcast Sunday night, including a segment showing Mr. De Lorean discussing the demise of his automobile company in Northern Ireland and his need for money to save the firm.

"This is what they call the nick of time," he said at one point. A KNXT spokeswoman said the station has 10 tapes that last 12 hours and will broadcast other excerpts this week.

Earlier Sunday, at a hastily

3 Killed in San Diego Fire

United Press International
SAN DIEGO — Three persons were killed and 40 others were injured Sunday in a fire at a downtown apartment building.

called hearing, three judges of the 9th U.S. Circuit Court of Appeals indicated they had no authority to impose prior restraint on the media to publish or broadcast material.

Mr. De Lorean's attorney, Howard Weitzman, and his co-counsel, Donald Re, told the court that broadcast of the surveillance tapes would make it virtually impossible to find an impartial jury anywhere in the country to judge Mr. De Lorean on the cocaine conspiracy charges. They indicated the broadcast might lead to a motion to dismiss all charges.

Mr. De Lorean's trial is scheduled to begin Nov. 1.

The trial prosecutor, James Walsh, argued emotionally against the release of the tape but was scolded by one of the judges for not keeping better control over the evidence and preventing a leak to CBS.

Following the ruling, Supreme Court Chief Justice Warren E. Burger and Justice William H. Rehnquist refused to block the broadcast. The circuit court's order vacated a temporary restraining order issued Saturday by Mr. De Lorean's trial judge, Robert Takasugi, who had scheduled a hearing on the issue Monday.

"I think the release of these tapes is going to unleash a circus unprecedented in court history," Mr. Weitzman said. "The media would be irresponsible to release them prior to trial."

Ruckelshaus Delaying Proposal on Acid Rain

By Philip Shabecoff

New York Times Service

WASHINGTON — William D. Ruckelshaus, administrator of the Environmental Protection Agency, has put off indefinitely a recommendation to President Ronald Reagan on a plan to control acid rain because of opposition from high-level members of the administration.

Agency officials said the process of developing such a plan was still going on although the pace of work had slowed. They said they still expected a recommendation to be made.

But Mr. Ruckelshaus, who said last summer that he would have a recommendation for the president by the end of September, now has no timetable for an acid rain program, according to agency officials. They could say only that a recommendation was still possible before the end of the year.

Mr. Ruckelshaus went to the White House on Wednesday to discuss the issue with key presidential aides, including James A. Baker 3d, the chief of staff; Edwin Meese 3d, the president's counselor; and David A. Stockman, director of the Office of Management and Budget.

According to administration officials, no substantive decisions were made at the meeting. One reported result of the meeting is that the environmental agency will look at new options for solving the acid rain problem that would meet the objections of the budget office, the Department of Transportation and other critics in the administration.

Acid rain is precipitation that has a high concentration of acids produced by sulfur dioxide, nitrogen oxide and other pollutants emitted in the combustion of fossil fuels, mainly from power plants and factories. It has a destructive effect on buildings and plant and aquatic life.

Environmentalists and some Democrats in Congress said they feared that Mr. Ruckelshaus's inability to come forward with an acid rain program after nearly six months in office indicated he could exercise little real power to protect the environment in an administration more concerned with reducing spending and easing the regulatory burden on industry.

David Hawkins, an environmental agency official in the Carter

administration and now an attorney for the Natural Resources Defense Council, said the Reagan administration was trying to stall on an acid rain program until early next year, when it would be too late for congressional action before the presidential election.

That way, he contended, the president would appear to have proposed a program but would not have to impose costly controls on industry to reduce the sources of acid rain.

In September agency officials reported that, after an intense examination of options, Mr. Ruckelshaus was giving his chief attention to a limited, experimental program aimed at cutting down sulfur emissions in four to six states in the Middle West to reduce acid rain in the Northeast, where its impact is a growing problem.

The cost of the program was estimated to range from \$1.5 billion to \$2.5 billion.

When Mr. Ruckelshaus presented the program to the President's Cabinet Council on the Environment, it was attacked as excessively expensive and unmanageable for political and other reasons.

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Florida Poll Buys Askew Campaign

The Associated Press

HOLLYWOOD, Florida — Former Vice President Walter F. Mondale's supporters rejoined over his second-place showing Sunday in a presidential straw poll in Florida, while Ron Askew, a former Florida governor, said his winning margin was large enough to keep his candidacy alive.

Mr. Askew's 45-percent showing in the straw poll at the Florida Democratic State Convention was worse than he had expected, and he attributed the result, in part, to organized labor's support for Mr. Mondale and a newspaper survey showing the former vice president favored by 32 percent of Florida Democrats polled. Mr. Askew had 26 percent in the newspaper poll.

But Mr. Askew said he was "happy and satisfied" with his total at the state convention poll. He said

the it was sufficient for him to continue his campaign.

Mr. Mondale's backers said his 35 percent of the vote of the 2,325 delegates showed he could win in the South. Workers for Senator John Glenn of Ohio said they were satisfied with his third-place finish of 17 percent.

About 150 to 200 delegates, at the urging of labor unions, switched from Mr. Askew to Mr. Mondale during the Democratic convention, party leaders said. Political observers considered the vote a test of Mr. Mondale's endorsement by the AFL-CIO and the National Education Association, a teachers group.

Mr. Askew attributed his showing to a concerted effort by two better-financed and better-known candidates, Mr. Mondale and Mr. Glenn; the failure of about 500

delegates to attend; the major effort by organized labor on behalf of Mr. Mondale, and the newspaper poll.

That poll, conducted by three newspapers and published on the morning of the convention balloting, placed Mr. Glenn third with 19 percent.

"Where I lost was among people who weren't here when I was governor," Mr. Askew said of the newspaper poll.

Mondale Wins in Northeast

Mr. Mondale held a commanding lead over Mr. Glenn in a Democratic presidential poll in New Hampshire. The Associated Press reported from Manchester, Mr. Mondale was favored by 44 percent to be the Democratic nominee while Mr. Glenn was favored by 20 percent, the poll said.

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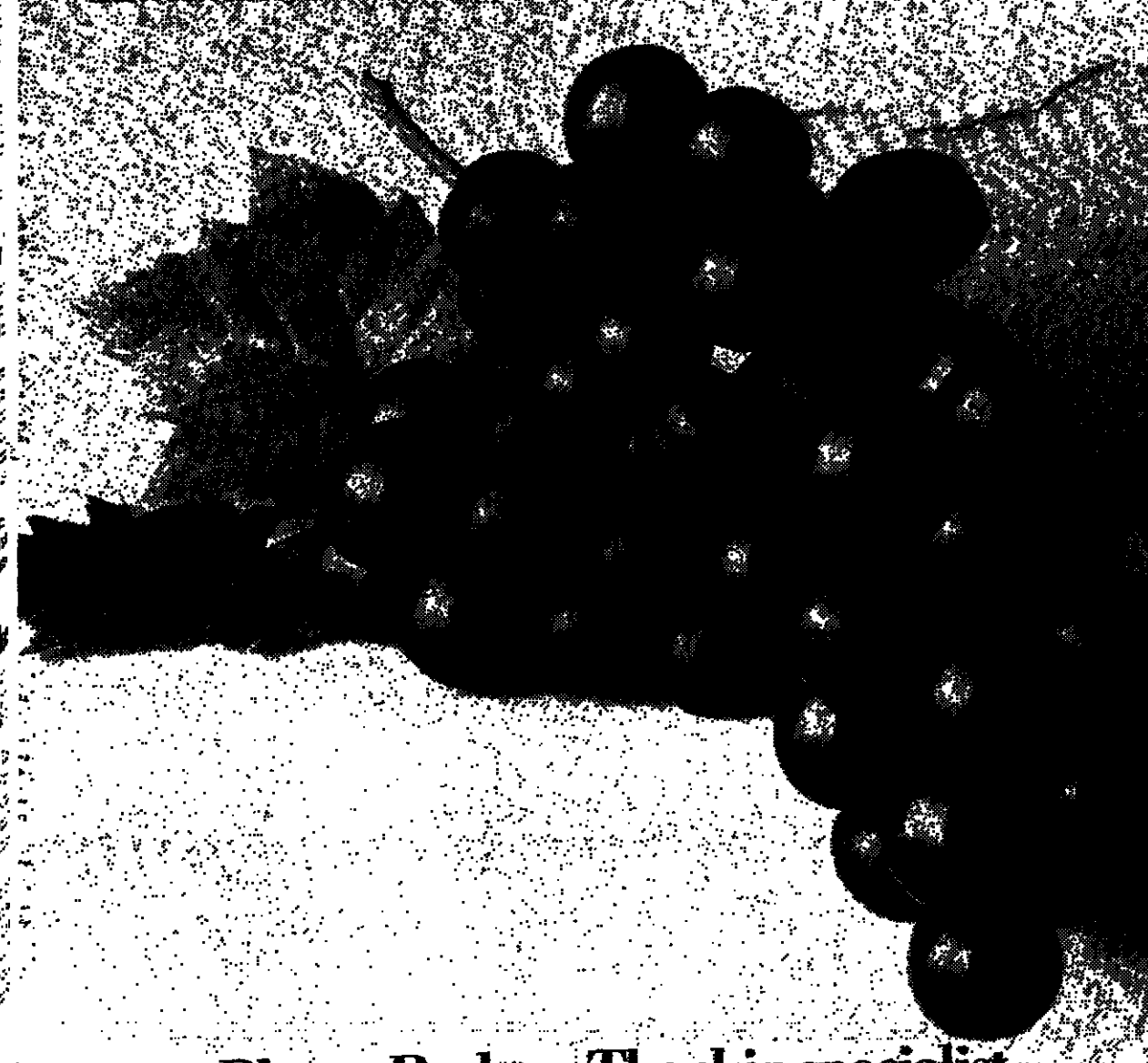
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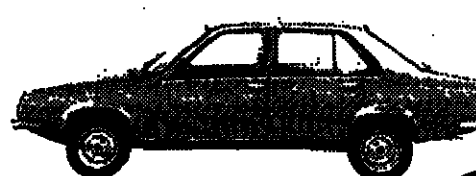
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Hearings Expected On Carter Papers

By William E. Farrell
New York Times Service

WASHINGTON — A four-month congressional investigation into the conduct of the 1980 presidential campaign is expected to result in public hearings by mid-November that will focus on how Ronald Reagan's campaign obtained copies of briefing papers prepared for President Jimmy Carter in his television debate with Mr. Reagan.

The hearings were originally planned for this month, but the chairman of the House subcommittee conducting the inquiry said last week that "new leads" had been uncovered that required additional staff investigation.

The chairman, Representative Donald J. Albosta, a Michigan Democrat who heads the Human Resources Subcommittee of the House Post Office and Civil Service Committee, offered no details about the "new leads." But he said he hoped the hearings could begin before Nov. 18, when Congress hopes to recess.

The subcommittee investigation is being conducted parallel to one by the Federal Bureau of Investigation, and an agreement has been worked out whereby the bureau has been giving the subcommittee staff the information from its interviews.

The subcommittee staff of 10 has conducted more than 100 interviews and has studied Mr. Reagan's campaign files.

The subcommittee study is focusing on whether changes are needed in the Ethics in Government Act, which regulates the conduct of federal employees. The act of calling hearings would appear to reflect a feeling by the subcommittee that such reforms are needed, according to legislative experts.

An effort has been made to conduct the investigation in a bipartisan manner, although a partisan incident occurred in mid-September when Mr. Albosta, in a report to the subcommittee, said that evidence had been uncovered indicating "an organized effort" by the Reagan campaign to obtain materials from the Carter White House. This assertion was denied by Steve Hemphill, the Republican counsel to the Post Office and Civil Service Committee.

Since then, there has been little public comment about the panel's work.

The congressional inquiry came after a furor last summer over the disclosure that Reagan advisers in the 1980 campaign had access to strategy material prepared for Mr. Carter. At first Mr. Reagan dismissed the issue. But a few days later he asked the Justice Department to conduct a "vigorous monitoring" of the incident for any sign of illegality.

At the center of the controversy are conflicting accounts by two Reagan aides over how the Carter briefing papers were obtained.

James A. Baker 3d, the White House chief of staff and a Reagan campaign aide in 1980, has said he believes the material was contained in a notebook handed to him by William J. Casey, now director of central intelligence. Mr. Casey, who was Mr. Reagan's campaign chairman, has denied that.

Although the congressional subcommittee has not announced who would be called as witnesses, it is expected that Mr. Baker and Mr. Casey would be among them. Witnesses at the hearing will be testifying under oath, and the subcommittee has subpoena power.



Kenneth Kurze, a U.S. diplomat, speaks with reporters in Bridgetown, Barbados, after returning from Grenada, where he and other U.S. envoys visited with American residents.

Grenada Keeps Airport Shut, Barring Americans and Britons From Leaving

The Associated Press

BRIDGETOWN, Barbados — Grenada kept its airport closed Monday, blocking at least 200 U.S. citizens and 40 Britons who want to leave the troubled Caribbean island, diplomatic sources said.

A spokesman for the U.S. Embassy in Barbados confirmed that there was no air traffic to or from Grenada, but added that "all options are under consideration as far as the departure of Americans is concerned." He declined to elaborate.

A Western diplomatic source said that between 200 and 300 of the nearly 1,000 U.S. citizens and 40 to 50 of the approximately 350 Britons on the island want to leave.

Radio Free Grenada, which is government-controlled, said Sunday that the airport would open on Monday. But it later announced that the ruling military council feared an invasion by forces from the United States, Britain and some Caribbean countries.

The 16-member council, headed by General Hudson Austin, seized power Oct. 19, after Prime Minister Maurice Bishop, three cabinet ministers and several other Bishop supporters were killed by soldiers in St. George's, the capital.

Mr. Bishop had been deposed a week earlier in a move supporters said was arranged by his deputy, Bernard Coard, a radical Marxist. But Mr. Coard since has disappeared from sight.

In Washington, Larry M. Speakes, the deputy White House press secretary, said there was no indication of any danger to Americans in Grenada. He said civil violence was reported to be dwindling, but that "the situation remains unstable."

Grenada's 110,000 people faced a four-day under a 24-hour curfew on Monday.

Four U.S. diplomats visited Grenada Sunday to interview Ameri-

can residents, and one of the diplomats, Kenneth Kurze, later said Americans were not yet being urged to leave.

Leaders of the 13-nation Caribbean Community, or Caricom, decided Sunday in Trinidad to cut off all trade with Grenada. They also discussed possible military intervention to "restore normalcy" in Grenada, but were unable to agree on any joint action.

The leaders decided to restore normal relations with Grenada only when a broad-based civilian government is put in place with plans for early elections, according to Prime Minister George Chambers of Trinidad.

[President Forbes Burnham of Guyana said his country was the only one present to oppose the suspension. Reuters reported from Trinidad. Caricom normally requires unanimous consent to take action, but made the decision on Grenada by a majority vote.]

Radio Free Grenada said the government feared an invasion would follow the Caricom meeting.

The broadcast said the military council sent a diplomatic note to the U.S. Embassy in Bridgetown, warning that an invasion would lead to the deaths of "thousands of men, women and children" and would be "a rule violation of Grenada's sovereignty and of international law."

The broadcast repeated earlier assurances that the lives and property of foreigners would be protected.

About 120 soldiers were observed arriving Sunday afternoon at the Barbados international airport. Hudson Austin, foreign minister of St. Vincent, said police from his island state had traveled to Barbados to participate in a regional training program "in light of the present developments in Grenada." But he said there were no

plans to use the policemen in any regional force in Grenada.

The United States has said it does not intend to invade Grenada. A 10-ship U.S. naval group carrying 1,900 Marines is sailing toward the area of the tiny nation with the announced mission of evacuating Americans, if necessary.

Britain said Sunday it was sending a destroyer to its former colony in case British citizens want to leave. Canada has been trying to arrange a charter flight for about 20 Canadians, a Canadian External Affairs Ministry official said in Ottawa.

At Least 100 Held In Bombings by Guerrillas in Lima

The Associated Press

LIMA — Police arrested more than 100 people in connection with weekend bombings attacks in which five persons were killed, but the woman who is a key suspect was still at large, a Civil Guard spokesman said Monday.

The spokesman said many of those picked up in the sweep by 20,000 police in the capital were questioned and released. But he said at least seven with links to guerrilla groups were still being held.

He said investigators had determined that the bombing of the headquarters of the Popular Action Party Saturday night was led by Laura Zambardo. She is believed to be head of Lima operations for the Maoist guerrilla group, Sendero Luminoso, or Shining Path, which has been fighting the government for three years, he said.

More than 20 bombs were exploded in coordinated attacks in Lima.

Managua Plans Coastal Security Zone To Protect Oil Depots From Attack

By Robert J. McCartney
Washington Post Service

MANAGUA — Nicaragua plans to declare a 25-mile security zone off both its coasts and move thousands of people away from vulnerable fuel-storage tanks in the nation's largest port in response to recent attacks by U.S.-backed counterrevolutionary guerrillas, according to government officials.

The steps reflect concern over the rebels' success at staging raids on coastal facilities from the sea. The security zone could lead to tensions between Nicaragua and the United States, which reportedly still has warships in waters off the Honduran coast, north of Nicaragua.

Under the naval and air security zone proposed by the junta, foreign military planes or ships would have to ask permission 15 days in advance before coming within 25 miles (40 kilometers) of the Nicaraguan coast. Civilian craft would have to seek permission a week in advance.

While the United States technically only respects a three-mile coastal limit, it has in practice kept ships more than 12 miles from the Nicaraguan coast, a U.S. Embassy spokesman said.

The United States or other countries with ships in the area might object to the 25-mile zone. A flotilla of U.S. ships was dispatched to waters near Nicaragua's Caribbean and Pacific coasts last summer in a show of force coinciding with U.S. military maneuvers in Honduras.

The Nicaraguan plan, outlined Sunday in the pro-government newspaper Nuevo Diario, does not explicitly threaten to attack military ships or planes that infringe on the 25-mile limit. Instead, it provides for fines of up to \$75,000 if the vessels or planes resist authorities seeking to expel it.

To enforce the zone, Nicaragua would have to rely on its small navy, made up mostly of small patrol boats.

The Council of State, the national legislature, is scheduled to begin considering the plan Wednesday. It is dominated by the Sandinistas, and approval is considered routine.

The Sandinist government also began over the weekend to promote a peace proposal it had presented in Washington on Thursday aimed at negotiating a halt in guerrilla attacks.

Daniel Ortega Saavedra, coordinator of the ruling revolutionary junta, sounded conciliatory when asked to comment on a U.S. statement calling the Nicaraguan proposals "deficient."

"We hope that they really will study them and plan political solutions," Mr. Ortega said Saturday.

The pro-government media had given relatively little attention to the peace proposals Thursday and Friday, but the official newspaper of the ruling Sandinist front on Sunday ran a long editorial stressing Nicaragua's willingness to negotiate.

In another development, Mr. Ortega announced that repairs had almost been completed on an underwater pipeline that was sabotaged Oct. 14 at a vital oil-receiving terminal in Puerto Sandino. He said that negotiations were under way to rent a tanker to deliver oil after Exxon Corp. 10 days ago stopped providing tankers to carry oil to Nicaragua because of safety considerations.

A diplomatic source said a tanker had already been leased and was expected to arrive in early November. Tankers docking at Puerto Sandino provide more than three-

quarters of the nation's petroleum needs, and the government told citizens to expect tighter fuel rations after Exxon canceled its shipments. The U.S. corporation acted after guerrillas of the CIA-funded Nicaraguan Democratic Force threatened to attack any tankers supplying Nicaragua.

The government also is planning to evacuate about 3,000 people from their homes around fuel tanks in the Pacific port of Corinto before Nov. 10, officials said. They

would live in new homes being constructed less than 10 miles away. Corinto, with a population of close to 25,000, was evacuated Oct. 10 when guerrillas in a motorboat fired on the fuel tanks, starting a huge fire. Nicaragua also has suffered attacks by small aircraft in the past six weeks, but the boat raid caused more damage.

Mr. Ortega said the government was considering moving the port's entire population because of the danger of attacks.

Hunger Problem Widening, U.S. Mayors Warn in Report

United Press International

WASHINGTON — Despite the economic recovery and successful food programs by local governments and private groups, the problem of hunger is continuing to grow in American cities, the U.S. Conference of Mayors said Monday.

The conference, in a new report, "Responses to Urban Hunger," said the gap between the demand for assistance and the public and private resources to meet that demand "continues to widen."

"While local efforts have provided temporary relief to numerous city residents, they often do not serve all of the people in need," the

report said. "In addition, by investing such a significant portion of their resources in emergency feeding programs, many local agencies have had to cut back on other needed services."

It concluded, "The problem of hunger is indeed continuing to grow in cities despite recent reports of an economic recovery."

It said the chief cause of hunger is joblessness, "which has remained near record levels in the last year and is not expected to decrease substantially in the immediate future."

"The problem has been exacerbated, clearly, by the recent drastic cuts in federal benefits, and the high cost of basic necessities, such as food, shelter and energy," the report said.

The report, the second of two funded by the American Can Co. Foundation to examine hunger in U.S. cities, found a number of successful private and public food programs in Cleveland; Columbus, Ohio; Detroit; El Paso, Texas; Indianapolis; Knoxville, Tennessee; Philadelphia, and Seattle.

Examples of successful programs cited included emergency telephone lines for food in Detroit and Philadelphia, food banks in New York, Seattle and El Paso, emergency food coalitions in Columbus and Cuyahoga County, Ohio, a municipal food policy in Knoxville, surplus food commodities distribution in Nashville and Detroit, an urban gardening project in Cleveland, an emergency assistance fund in Indianapolis and an effort to raise awareness of the problem in New Orleans.

The report was released as the mayors' conference convened its seventh annual meeting of officials from city human services departments and as the weather began to turn colder, again threatening to aggravate the problems of homelessness and hunger.



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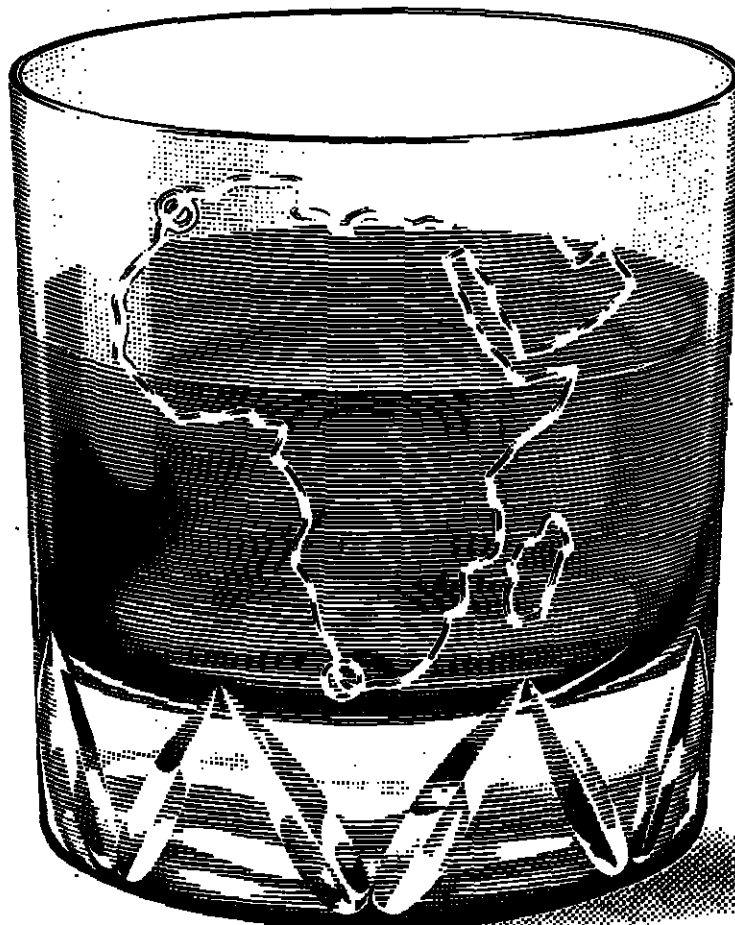
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Jessica Savitch, An Anchorwoman For NBC, Drowns

The Associated Press

NEW HOPE, Pennsylvania — Jessica Savitch, 35, an anchorwoman for NBC News and for a weekly program on the Public Broadcasting Service, drowned Sunday along with Martin Fischbein, a New York Post executive, when their car tumbled into a canal near the Pennsylvania-New Jersey border, officials said Monday.

The car was found early Monday in about four feet (1.2 meters) of water, rescue officials said. They said the vehicle was upside down and that mud apparently had prevented the couple from opening the car doors. It was not clear why the car plunged into the canal.

Mr. Fischbein, 34, was vice president and assistant general manager of the Post. An NBC spokesman said Mr. Fischbein and Miss Savitch were close friends.

Miss Savitch, who had been with NBC for six years, delivered the network's prime-time news updates, and had been an anchor for the Saturday edition of the "NBC Nightly News" until last summer, when she was replaced by Connie Chung. She was the author of the book "Anchorwoman."

DEATH NOTICE

SWEENEY, Robert J. V. DSC at his home on Oct. 21, peacefully after a long illness bravely borne. Beloved father of Sharon Sweeney and Brenda Watson and beloved brother of Charles Sweeney. Requiem mass on Wed., Oct. 26 at 11 a.m., Farm Street Church, W.I. and thereafter at Brookwood Cemetery, Woking.

DEATH NOTICE

Mr. Gregg CONWAY, Chairman of the art department in the Paris American Academy, just died. The funeral service will be held at the Père-Lachaise, on Wednesday, October 26, at 10:30 a.m.

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INTERNATIONAL Herald Tribune

Published With The New York Times and The Washington Post

America Held Hostage

Once again the United States is held hostage by Middle East circumstance beyond its control, and this time there is no escape through daring rescue missions or ransom negotiations. Honor and prestige are again on the line, but the U.S. Marines who claim them are dead. They are the victims of a murky diplomatic cause that President Reagan feels bound to reaffirm but still cannot fully define.

There are no words, as Mr. Reagan said, to express our grief at the losses of American and French troops. But where are the words that express their purpose and the conditions under which they would finally depart? The dilemma was more candidly stated by France's foreign minister, Claude Cheysson. His nation, too, he observed, "isn't accustomed to giving up under pressure, but we must ask if our force's military role is really necessary."

It is a proper question now that the cost of the troops' inert presence around Beirut has been so shockingly raised. It is glib to rush to answer in the first hours of despair.

The 5,000 American, French and Italian troops in Lebanon are not a "peacekeeping" force neutrally protecting an agreed political arrangement. They guard the airport and other approaches to Beirut on behalf of a weak Lebanese government seriously challenged by assorted private sectarian militias. Some of these sects are beholden to Syria, which keeps 40,000 troops in Lebanon and aims to control the eventual government in Beirut.

The Syrians, in turn, are stiffened by at least 5,000 Soviet "advisers" who operate missiles in Syria that cover a large part of Lebanon's

territory and airspace. They are strategically matched by Israel, which humbled the Syrians on its march to Beirut last year but has since retreated to avoid the kind of casualties that are now being inflicted on the marines.

Israel helped to create the Gemayel government but has long since despaired of bringing order to Lebanon. It has offered to withdraw altogether if the Syrians also withdraw. If not, it will control southern Lebanon while acquiescing in the partition of the country. The U.S. Marines serve no Israeli military need.

To abandon Lebanon to Syrian domination can be represented as a defeat for the West and a triumph for Soviet policy. But it would more accurately be only a surrender to the chaos that prevailed between 1975 and 1982. The Western forces were withdrawn once, 13 months ago, after briefly monitoring the PLO's evacuation from Beirut.

They were reinserted only after the murder of President Gemayel's brother, Bashir, and mainly to honor a commitment to protect Palestinian civilians from Phalangist massacre. Only gradually did the marines' political mission grow, even as their physical situation has become progressively more vulnerable.

If their mission can be given a plausible objective and a foreseeable end, Sunday's tragic losses may be redeemable. But merely proving American mettle to the Russians is a poor reason for persisting. Helping Lebanon to achieve a frail independence is a worthy goal but not a vital American interest. The costs of that help cannot be indefinite.

—THE NEW YORK TIMES.

Just when President Reagan had thought events were taking a turn for the better in Lebanon, a terrible explosion has taken the lives of well over a hundred American Marines. A parallel blast killed a large but undetermined number of French soldiers. The shock of the event and the scale of the toll create a political force compelling a review not just of the safety of the marines but also of their basic mission and its connection to the overall American stakes in Lebanon.

It will be necessary to learn why, after the April 18 car-bomb explosion that claimed more than 60 lives at the U.S. Embassy in Beirut, steps were not taken to prevent a repeat suicide mission. Only last Wednesday, Mr. Reagan had conceded the difficulty of defending the marines in their vulnerable airport location. He is under heavy pressure now to ensure that new protective steps will suffice.

No longer can the Reagan administration contain its internal reservations about what the marines were supposed to be doing. A reluctant-from-the-start secretary of defense said on Sunday that the original mission — to give confidence to the Lebanese government and to cover the withdrawal of foreign troops from Lebanon — was still in effect. But the conditions underlying it have long since dissipated. Troop withdrawal has halted, and civil war, led by outsiders, continues on a certain

scale. The marines find themselves in an exposed, sometimes-combat situation that was never part of their intended role.

For a power with America's responsibilities, it is inconceivable to hand the bombers victory by pulling the marines out. American influence throughout the region could collapse.

But what else? Henry Kissinger framed the issue on Sunday in terms of the local balance of power: Israel's partial withdrawal and Western "passivity," he suggested, were encouraging radical elements; unless America was prepared to join with others (Israel was named) to redress the balance and thus provide a firmer basis for negotiation, there was no point in keeping the marines in Lebanon. But Israel has its own reasons to hang back.

Speaking on television after Mr. Kissinger, Senator Sam Nunn said that without the Israelis the United States would have to make a "nuclear commitment," and that, he said, would be "unwise," given that the United States is already "spread thin."

All Americans are mourning the latest dead in Beirut. It is always risky to make major new departures when emotion is running so strong. Still, the Reagan administration cannot avoid the painful questions brought to the fore by the shocking toll in Beirut — questions it had hoped events would let it avoid.

—THE WASHINGTON POST.

Other Opinion

After the Carnage in Beirut

Lebanon has just been the scene of a stupefying massacre of elite troops, who died by the hundreds without having fought. There is little risk in surmising that the perpetrators of the revolting carnage were fanatics bent on martyrdom. But the precision of the operation, the back-up organization, the choice of targets and the simultaneity of the explosions imply superiorly equipped instigators — that is, states.

However demented and excessive the style of this massacre, it was clearly a message from state to state, and the addressees know it. The message concerns the "Western solution" that the Americans — partly due to clumsiness and an inability to persuade their Israeli allies — have failed to bring about in the region. The "bold operation of patriotic forces" hailed by Libya (the only state to use that language) is clearly intended to dislodge the multinational force — which is at present one of the principal hopes of a beleaguered Lebanese state threatened with partition of the country.

The crime is a frightful blow to France and the United States, but their pride and good sense rule out capitulation. Lebanon would face chaos if the multinational force withdrew in an admission of bloody failure.

—Le Monde (Paris).

The West must not abandon the attempt to secure a negotiated settlement which takes account of Syrian as well as Western interests, and of the interests of the Lebanese communities. What has happened is a test of Western nerves, but more so of Western statesmanship.

—The Times (London).

In the flash of one massive bomb Sunday, President Reagan came face-to-face with the politics of death in the Middle East. By [Lebanese] standards the U.S. losses were small. But they do not seem small to Americans. Inevitably there will be I-told-you-sos, publicly or privately voiced, some justified. The dominant voices in the Defense Department itself opposed the commitment of marines to Lebanon.

—Henry Thwaites in the Baltimore Sun.

What can be done to prevent a recurrence of terrorist attacks? Expanding the marines' prerogative to open fire will not help much. The most realistic forecast is that the marines will remain in Beirut as a symbol of American stubbornness, but they will show more awareness and caution. With that, they will doubtless remain vulnerable to attacks, and the threat exists that the erosion of Western influence in Lebanon will continue.

—Horeauz (Tel Aviv).

Whoever stood behind this bloody act was aiming for precisely this reaction: a general, all-out and unrelenting demand to bring the troops home. But this thought must be rejected out of hand by anyone who considers the inevitable effect such a decision would have on U.S. standing and prestige, not only in this part of the world but globally.

—Maurin (Tel Aviv).

[U.S. withdrawal] would be seen as humiliation at the expense of a third-rate power like Syria. But in the long run the option of some kind of reconciliation with the Syrians, and a pullout of the Marines, cannot be written off.

—The Jerusalem Post.

For a Soviet-American Summit on Missiles

By Paul Warnke and David Linebaugh

WASHINGTON — A summit meeting between Ronald Reagan and Yuri Andropov is urgently needed soon. If there is no early summit with positive results on arms control, the United States will face a further deterioration in its relations with the Soviet Union, and Western Europe's confidence in American leadership will decline.

The cause of these probable developments will be the deployment of new American missiles in Europe beginning on Dec. 15 — medium-range deployments justified as a response to the Soviet SS-20 buildup.

The Soviets regard the Pershing-2 as an unprecedented threat to the command and control of Soviet strategic forces, their most crucial and sensitive capability. They believe the cruise missile will add a new dimension to the arms race and significantly increase the threat from America. Mr. Andropov has warned repeatedly against these new weapons, vowing that Moscow will respond with new Soviet weapons that could threaten America in an "analogous" way.

In Western Europe, public opinion polls show that confidence in U.S. leadership is at an all-time low. In West Germany, many believe that the United States has not made a real effort to negotiate a solution to the medium-range missile issue.

Clarence Helms, who has advocated Reagan-Andropov summit, Bonn would support an agreement along the lines of the "walk in the woods" proposal — a reduction plan devised in July 1982 by INF (intermediate-range nuclear forces) negotiators Paul Nitze and Yuri Kvitsinsky. It provided for limited U.S. deploy-

ments and significant Soviet cuts. The INF talks have been stalled on two issues: U.S. insistence that the warhead ceilings be global, thus limiting Soviet SS-20 deployments in Asia, and Soviet insistence that British and French forces be taken into account in calculating reductions.

In his United Nations speech of Sept. 26, President Reagan adopted a more flexible position regarding "global ceilings." The United States

of reasons. Moscow confronts continuing problems of overriding importance to its security in its relations with Eastern Europe and China. It needs political stability between East and West in Europe — not a theater nuclear arms race. Yet the Soviets face a qualitative and quantitative expansion in Western theater nuclear forces — including a quadrupling of British and French forces. The critical date for Mr. Andropov is

The two leaders will be prudent if they begin to compromise on their INF differences.

is now apparently ready to accept a freeze on Soviet SS-20s deployed in Asia if the Soviet Union conceded INF equality in Europe. America would retain the right (but not exercise it) to match the Soviets in Asia.

On Aug. 26, Mr. Andropov told Pravda that the Soviet Union would "liquidate" all missiles withdrawn from Europe as the result of a reduction agreement. Up to that time, the Soviets had implied that they would simply redeploy a number of those missiles east of the Urals.

But neither side is showing any flexibility on another key matter — Soviet insistence that British and French forces be taken into account in calculating reductions. Thus, it remains for Mr. Reagan and Mr. Andropov to overcome inertia and put forward serious proposals here.

Mr. Andropov may want an early meeting with Mr. Reagan for a vari-

Dec. 15, when the new American deployments are due to begin. He is negotiating against the clock.

To avoid adverse developments and take advantage of a strong U.S. bargaining position, the INF negotiations should be brought to a conclusion. The "walk in the woods" formula might be better than no agreement at all.

On the other hand, this formula would sanction cruise missile deployment, for which there is no military justification. The potential targets for these missiles are already covered by ballistic missiles. Poseidon missiles carrying 400 warheads that can strike the Soviet Union are assigned to the NATO commander. Due to its long coastlines, the United States is far more vulnerable to cruise missiles launched from the sea than is the Soviet Union. Stopping Moscow from deploying such weapons has ob-

vious priority over deploying them. As guidelines for negotiating an INF agreement, Mr. Reagan and Mr. Andropov should agree to restore the overall warhead balance on medium-range missiles that existed prior to the significant expansion of Soviet warheads that began in 1977. The Soviets would dismantle missiles carrying about 700 warheads, leaving about 300 warheads targeted on Europe and 300 targeted on Asia for a total of 600, the number deployed in 1977. British and French forces would not be taken into account in calculating these reductions, thus satisfying the Western INF position. But, from the Soviet point of view, the outcome — 300 warheads aimed at Western Europe — would be about the same as if the reductions were based on the British and French level.

For its part, America would cancel the planned deployment of the SS-20 Pershing-2 and ground-launched cruise missiles; the substantial Soviet reductions would eliminate the rationale for these new U.S. deployments. And both sides should agree to deal with the issue of intermediate-range aircraft in follow-on negotiations.

The two leaders will be prudent if they begin to compromise on their INF differences. They will be bold if they meet at a summit to set in motion this process of accommodation on the gravest problem of our time.

Mr. Warnke is a former director of the Arms Control and Disarmament Agency; he was President Carter's SALT negotiator. Mr. Linebaugh is a former deputy assistant director of the ACDA. They contributed this comment to The Washington Post.

Foreign Policy In an Abusive Debate Mode

By Stephen S. Rosenfeld

WASHINGTON — Why don't we all allow ourselves a second look at the American response to the downing of the South Korean airliner? A pattern of events has belatedly come into focus that could make a difference.

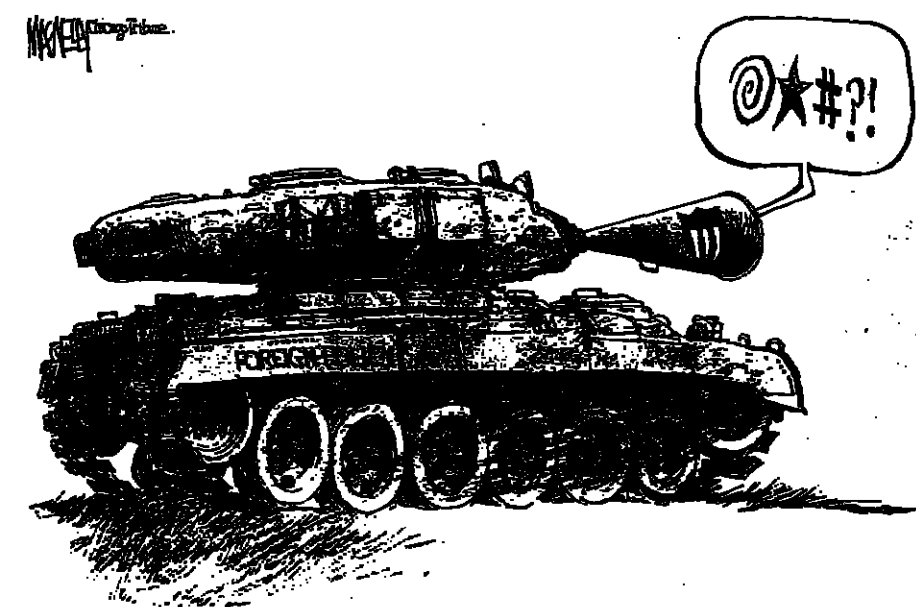
The pattern fell into place in a New York Times story of Oct. 6 that went straight to the central question of what did they know and when did they know it. American intelligence officials, the Times said, had reviewed all available evidence and found no indication that Soviet air defense personnel knew the plane they were firing at was a commercial airliner. This judgment was said to have gone to the White House two weeks after the attack.

The pieces of this story had been published earlier, but the assembly of the pieces permitted a clear view of a critical difference previously fudged: the difference between shooting down a plane knowing it was a military reconnaissance aircraft. It is not the whole difference between guilt and exonerated, but it is the partial difference between an act reflecting unforgivable cynicism and an act of applicable hardness.

In other words, U.S. intelligence fairly early came to a view consistent with the Soviets' claim that they had taken the airliner for a military RC-135, one of which had been off their coast a few hours earlier. But American policy and opinion have not caught up with this view.

One trouble was that the Soviets added the charge, still not in the slightest substantiated, that the South Korean plane was doing espionage duty. Many Americans in and out of the government have found it easier to shoot that particular fish in a barrel than to cope squarely with the Soviets' assertion of mistaken identity.

So at least until Oct. 6 — during the whole month-plus when American policy and public opinion were most deeply engaged — the domi-



nant view was that the Soviets shot down the airliner deliberately and wittingly. From that perception flowed many number of epithets and condemnations, which in turn contributed to the Soviets' further responses and, with those responses, colored the atmosphere in which the missile talks were unfolding.

It seems to me that the dominant view been that the Soviets committed "only" a heartless paranoid act by shooting down an airliner they thought was a spy plane, words and hearts would not have so hardened, and the resultant political damage would have been less.

Many will recall that after Israel shot down a plane it knew to be a Libyan airliner, with 113 lives lost, the United States took it in stride as just one of those unfortunate things.

Imagine if President Reagan, after getting the straight view in mid-September, had gone on television to say: "We have sifted the intelligence and concluded that, contrary to our earlier suspicions, the Soviets might have thought they were shooting at one of our intelligence planes. We think the Soviets were negligent in not identifying the plane correctly, unjustified in shooting it down without knowing what it was and tenden-

tious in accusing us of using the Korean plane for spying. But . . . Mr. Reagan did go forward with the arms talks, of course. But he did so to the accompaniment of angry, abusive cross-cutting comments, which continue.

The Reagan administration could have used the Times report to reposition America in public diplomacy for the next substantive steps in private diplomacy. Instead the State Department chose to stay in the familiar defensive debate mode. The United States does not and may never know "for sure" whether the Soviets thought KAL 007 was a civilian plane, the spokesman said. Anyway, they should have known.

After William Pfaff wrote a good column in the International Herald Tribune of Oct. 13 criticizing the Reagan administration for not facing up to the implications of the Times report, a U.S. Information Agency official said on Oct. 19 that the column "must delight Soviet propagandists" and repeated the assertion that the shooting was an act of "unprovoked aggression."

Is there not one person in all the government of the United States who can publicly talk straight about this affair?

The Washington Post.

Grenada: When All Take an Island Too Seriously

By Jonathan Power

KINGSTON, Jamaica — When a real country starts to look like a Graham Greene novel, the time has come to ask fundamental questions about what went wrong. It is clear that the group of young men and women around Maurice Bishop, the murdered prime minister in Grenada, were politically out of their depth.

Grenada is one of the smallest of the Caribbean islands. It is no insult to say it is unlikely to be able to produce a political class above the parish or small-town standard. Yet there they were, co-opted by a Ministry of Foreign Affairs, competing embassies and Cuban airport buildings, courted by Moscow, denounced by Washington, visited by a regular trail of newspaper correspondents — made to feel very important indeed.

They were suddenly told they had strategic importance, sitting amid vital oil tanker routes, a possible refueling stop for Cuban troops who might one day be flown to fight the good fight in a race war in South Africa.

They learned they could play the aid game. As a boy, Maurice Bishop had heard his hotel-keeper father say, "What we need is a decent airport." It was a common refrain on the island. And so, when the World Bank pulled out of a long-planned big runway project meant to accommodate mainly North American tourists, he pulled in the Cubans. (Ironically, they subcontracted much of the work to an American firm.)

When the British and the Americans stopped giving aid, to punish Grenada for consorting with the Cubans, he went to the Canadians, the Dutch and the Scandinavians, who like to show there is such a thing as "non-imperialistic" Westerners.

It was all big bluff for a group of small island people, young, moderately well educated and who, rather at second hand, had experienced "black power" politics in London in the heady 1960s.

The shots fired in Grenada last week had a little in common with those that rang out at Kent State University nearly a decade and a half ago when nervous National Guardsmen lost their cool with student anti-war demonstrators. What had begun rather innocently as "protest" degenerated into a life-and-death struggle.

The difference, of course, is that a mature democratic society has a way of coping with such excesses. In the United States there were congressional debates, legal and media investigations, means of financial compensation — a paraphernalia of safety valves that worked to help right a wrong. In "revolutionary" Grenada there was just this group of young men and women. When they began to quarrel about who should have what power, there was no one to arbitrate, no one to challenge them. Above all, perhaps, they had no one to say they were taking themselves too seriously.

A year ago I was in Grenada, feeling a little guilty that I was adding to the cacophony of lopsided interest in the island's destiny. Still, one thing was clear. The people liked Mr. Bishop, by far and large, and felt that his economic policies — which were basically social democratic, for all the Marxist rhetoric — were good and sensible. So did the World Bank, in its 1982 report on the economy.

Nevertheless there was a widespread and deeply felt urge to return to democracy — to be like the sister English-speaking Caribbean islands with their old, shared tradition of Western values, tolerant behavior and democratic institutions.

Mr. Bishop and others close to him

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Mr. Bishop and others close to him

A South African Stride

Regarding "South African Intrude for Strange Bedfellows" (HT, Oct. 13) by Helen Szecman.

The writer scoffs too easily at the proposed new constitution of South Africa. Actually, it is a giant step in the right direction.

Twenty years ago a black man could not even be served in a shop ahead of a white man. Today such petty apartheid indecencies have been removed; and although they seem so insignificant to the free Westerner, it wrings the hearts of the whites to make those changes.

Gradually, some have come to accept them. Others have not. These are the people who still find an explanation for apartheid in the Christian Bible, and they are the ones who will benefit from a new vote.

Prime Minister P.W. Botha is by South African standards a very brave man. He is offering the coloreds and Indians a say in the running of the country. However small that may be, it is better than nothing.

The West should realize that for the first time since Saturday, April 6, 1952, when the first white man, Jan van Riebeeck, stepped onto the soil of the Cape of Good Hope to start a supply depot that grew into the South

African nation, a non-white will have the right to vote. How can Helen Szecman say no to that?

It is only a step, but at least Mr. Botha has got South Africa walking.

MARILYN TOMLINS, Paris.

On Human Inhumanity

In response to "An Iranian Wonder" (Letters, Oct. 17):

I appreciate the anguish of the Iranian writer, but I cannot share his wonder at the oblivion of the world regarding the atrocities of the Khomeni regime. It is ever thus.

Atrocities come and go in popular fancy. An atrocity that becomes institutionalized loses its novelty and ceases to be newsworthy, only to be replaced by another, such as human inhumanity for inhumanity.

Thus, Vietnamese boat people still

appear (and perish) on the high seas, but no longer in the news media. In the Iranian case, the establishment redoubtably joined in the chorus against the shah's shortcomings, and now prefers not to look directly at the appalling spectacle that its attitude helped to bring about.

We have to be content with a few humanitarian beacons, such as the International Red Cross, shining in a pervasive darkness of inhumanity.

JOHN CRABB, Ferney-Voltaire, France.

Red Cross Discretion

Regarding "The Red Cross: Dealing Quietly With a Mad World" (HT, Oct. 15) by Jonathan Power:

This article makes a solid point when it states that much of the reason why the Red Cross gets little press coverage is "a decision by the Red Cross to operate as secretly as it can." The organization "feels it can get much further with governments if it maintains strict confidentiality."

Why, then, does Mr. Power inform us of Red Cross activities in Palestine, Iran and Afghanistan? Granted, the Red Cross is "one of the organizations the world cannot afford to be without." But if it can better fulfill its objectives in strict confidentiality,

why does Mr. Power not respect its wishes, simply giving praise without going into detail about its activities?

JOHN W. TOWERS, Geneva.

A Filipino Probe

The officer responsible for security at Manila International Airport, where Benigno Aquino was shot down while in the custody of military guards, is General Fabian Var, a former driver and chief bodyguard of President Marcos and now, by virtue of martial law promotions, chief of staff. It has apparently never crossed General Var's mind to offer his resignation for a gross lack of security.

A month after the assassination, General Var suddenly bestirred himself and ordered an investigation. It apparently did not occur to him that he should be the one investigated — for gross negligence at the very least, if not for complicity.

The three probes selected by General Var are his subordinates. They can be dismissed at any time. This lack of independence guarantees that General Var's probe will wind up as discredited as the Fernando commission of Mr. Marcos.

SILAFORN DILAMART, Bangkok.

FROM OUR OCT. 25 PAGES, 75 AND 50 YEARS AGO

1908: A Balkans Agenda Is Delayed
CONSTANTINOPLE — The pourparles between the Powers concerning the programme of the Balkans Conference is meeting with difficulties because Turkey hesitates to express its views, which are indispensable. It is stated that Baron Marshall von Biberstein, the German Ambassador, advises the Porte to temporize in the hope that the efforts now being made to bring about an understanding between Turkey and Austria-Hungary will be successful. Sir Gerald Lowther, the British Ambassador, on the other hand, insists that Turkey shall come to a decision. It is sure that Kamil Pasha, under the pretext that the Bairam festival prevents him from occupying himself with the question, will try to gain time.

1933: America Enters Gold Market
PARIS — It matters little whether the initiative taken by President Roosevelt means the creation of an exchange equalization fund or not. The U.S. Government, through the Reconstruction Finance Program Corporation, a federal organism, is going to purchase gold against paper dollars. Several months before the abandonment of the gold standard, Europe withdrew its American deposits from New York. These withdrawals wiped out the foreign credits on the American centre, and the movements were offset by exports of American gold. The entire world has thus gambled on a fall of the dollar and on the inflation of the currency, and American exporters of capital have equally gambled on a lower rate.

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ARTS / LEISURE

Victorian Stage for Hayes at 83

New York Times Service

NYACK, New York — Helen Hayes sat on the veranda of her rambling Victorian house overlooking the Hudson River, drinking tea and recalling favorite memories of this place where she has lived for more than 50 years.

"All the wonderful, famous bodies that have plunged into that pool," she said, with a sweeping gesture toward the heated swimming pool that lies at the bottom of a terraced hill. "Leland Hayward. And Kate Hepburn — oh! that wonderful-looking creature. And Joan Crawford and Norma Shearer."

And John Barrymore. One morning he and Hayes's husband, the playwright Charles MacArthur, who died in 1956, decided that the water wasn't cool enough for a noon dip, so they ordered two truckloads of ice and had it dumped into the pool. They both were terribly hung over," Hayes recalled. "They sort of wobbled down to the pool. Later, as Jack Barrymore was floating amidst the ice, he said he felt like a fly in a highball."

Hayes, who just turned 83, has lived in the 21-room house since 1932. There is nowhere else that she would rather be, she says — something she found out in 1963 after she briefly sold the century-old house to Herbert Ross and Nora Kaye and then scheduled a charity auction of 993 items, many of them Victorian, that she had acquired from friends and fans over the years. She had taken an apartment in Manhattan, 30 miles (48 kilo-

Figures, Scenes for Sale At Chinatown Museum

United Press International

SAN FRANCISCO — The lavish costumes, scenes and figures from the Chinatown Wax Museum are for sale — including a huge dragon at half price, \$4,000 — as the museum has closed to make way for a shopping center.

Ted Smith, a former clown, bought all 115 wax figures to sell. They cost about \$2,000 each when they were made 14 years ago in Hong Kong. Smith is acting as sales agent for costumes and props, such as a fortune cookie-making machine and slippers for bound feet. He said half the scenes and figures had been sold for display in museums and private homes.



Helen Hayes in the living room of her home in Nyack, New York.

ters) to the south, and didn't have room for the memorabilia.

The house sale fell through — "Nora said she had never lived in anything bigger than a trunk and didn't want to take on this great big house," Hayes explained — but the auction went on as scheduled. "As an old performer," she said, "I just didn't have the nerve to call it off."

Afterwards I moved back into an almost empty house.

With a little help from friends, Hayes began filling the place up again, and today, as she did before the auction, she lives like a queen in a Victorian dream house. According to Vera Benham, her companion for 20 years, the 993 items that were auctioned have been replaced by 1,000 others, many of them Victorian.

"Oh, I'm so glad I didn't move to Manhattan," Hayes said, gazing out over the Hudson. "I would have missed this river so. I was going to settle in a five-room apartment, and sometimes I think of the miserable, empty time I would have had, calling people for lunch and walking up and down Central Park West."

The most dramatic room in her house is the living room, which is filled with chairs and couches covered with pink and green floral chintz. The ceiling-to-floor white lace curtains are topped by arched gilded crowns, and the burgundy carpet is so thick that a visitor gets a sinking feeling while standing on it. Hanging in a prominent place is an oil painting of Hayes's daughter, Mary, who died of polio in 1949 at the age of 19.

In an adjacent parlor a collection of engravings of Queen Victoria

and 15 of her ladies-in-waiting hangs on the wall, near a hardship that has been upended and fashioned into a display cabinet. An elegant Waterford chandelier hangs from the ceiling. Here and there are statues and dolls of Victorian and other pieces of Victoriana that have been given to the actress.

Hayes looked indignant when asked if her choice of decor had anything to do with her role as the queen in "Victoria Regina," in which she starred from 1935 to 1939. "Absolutely not!" she said. "We were living in this house before I got the script for 'Victoria Regina,' and the house has always been Victorian."

Asked why she was such a fan of the era, she replied: "It was the last comfortable room. I think that many people love it because it is a period of security — for the family and of finances. It was a golden era, perhaps a bit stodgy, but at least you had rules to guide you."

She added that she had been worried that her son, the actor James MacArthur, might find the house too fancy. But the first time he visited it after her redecorating was complete, she said, he smiled and told her: "Mother, it embraces you."

Hayes said her husband built a bar in the basement "as a place to escape from the Victoriana." There she keeps a chandelier and three red velvet seats from the old Helen Hayes Theater, which was demolished amid much bitterness in 1982 to make room for the Marriott Marquis Hotel now going up near Times Square. In July the Little Theater on West 44th Street was renamed in Hayes's honor.

The barroom also includes autographed photographs of such friends as Jack Benny, Harpo Marx, Lillian Gish, Fred Astaire, Noel Coward, John Gielgud, Laurence Olivier, Marlene Dietrich, Ruth Gordon, Ethel Barrymore and Alfred Lunt and Lynn Fontanne. Hayes's Oscar as best supporting actress in the 1970 movie "Airport" sits on the mantel. She said that most of her other awards, including another Oscar, a Tony and an Emmy, had been donated to the Museum of the City of New York.

Hayes, who retired from the theater in 1971, said she kept busy by swimming five laps a day, tending her 200 rosebushes, taking long walks and participating in meetings of the board of the Helen Hayes Hospital in nearby Haverstraw. A Roman Catholic, she recently completed an inspirational book called "A Gathering of Hope," to be published by the Fortress Press.

The first Thursday of every month she attends the meeting of the Thursday Reading Club, a group of Nyack women who read papers they have written on an annual theme. "One year was devoted entirely to the Hudson River, which I loved," she said.

Hayes said she also liked to go on "little trips." She recently returned from a one-week cruise on the Mississippi to St. Louis, Minn. "You get to be a river buff and you can't seem to break away from rivers," she said. Other trips take her out West to visit her son and her grandchildren, Charles, 23, and Mary, 18. She usually spends the winter at her home in Cuernavaca, Mexico.

Glasgow Museum Features Art Trove

The Associated Press

GLASGOW — A museum housing a treasure trove of art amassed by the Scottish shipping magnate Sir William Burrell has been opened in Pollock Park, a wooded area three miles (five kilometers) from the center of Glasgow.

The £20-million (\$30-million) museum's displays include Egyptian pottery, Chinese porcelain and jade, Oriental carpets, tapestries, European armor, Greek and Roman sculpture and a dazzling collection of 600 paintings, including works by Rembrandt, Cézanne and by Degas. There are also medieval stone doorways, ivories and clocks.

For almost 40 years, while Glasgow tried to find it a proper home, the collection lay in crates in dusty warehouses because the city had nowhere to put it. Burell and his wife were occasionally loaned out for exhibitions.

Sir John Rothenstein, former director of the Tate Gallery in London, said when the museum was opened Friday by Queen Elizabeth II: "Burrell was a collector of vast perception. The addition of his collection to Glasgow's other museums and art galleries gives the city an honored place among the great art centers of Europe."

Sir William died at Hutton Castle, his home near Banchory, Scotland, in 1958. He had left the 8,000 works of art to Glasgow in 1944. They are conservatively valued at more than £100 million. The Burrell collection is one of the most dazzling in Europe put together by one man.

Richard Marks, the curator of the collection and Sir William's biographer, said that what

made the shipowner an exceptional collector were the same qualities that made him a multimillionaire.

"Very few collectors apply business methods to the art world," Marks said. "But Burrell did. He never forgot the lessons he learned in the shipping business."

William Burrell was born in 1861, the son of a small-time Glasgow shipowner. He joined the family business when he was 15. He bought his first painting that year, for a few shillings that his father had given him to buy a cricket bat.

He and his brother George built the business into one of the largest steamship companies based on the River Clyde. William Burrell traveled the world searching out shipping deals with single-minded ruthlessness, Marks said.

"He would wait for the bottom to drop out of the shipping market and then, when things were really bad, and the shipyards were desperate for work, he would place an order for ships, which he would get for half the usual price. Then, when the market picked up again in a few years, he would sell the ships for an extremely handsome profit."

Burrell made a fortune in the Boer War of 1899-1902. In 1916, halfway through World War I, he pulled off his biggest coup, selling almost his entire fleet at a huge profit in a world desperate for ships. Ten of the ships, which had cost him about £400,000 and were almost 10 years old, were sold to Australia for £145,000 each.

After that, Burrell gave up business, retired to his castle on the Scottish-English border and began a worldwide quest for art.

From 1911 to 1957 he spent about £20,000 a year on his collection. "It was nothing like the sums spent by American collectors such as William Randolph Hearst, but Burrell's collection was as good as any," Marks said.

"In fact, Burrell bought a lot of medieval stonework from Hearst when the American was going bankrupt. What Burrell lacked in scholarship he made up for with taste and a tremendous eye for a bargain, working through a small group of dealers whom he trusted. Among them was Alexander Reid of Glasgow, who had been a friend of the painter Vincent van Gogh."

Burrell insisted that his bequest be housed away from Glasgow's polluted air. He left £450,000 to help build a museum, but the city still expects to have trouble paying for the building and coming up with the £2.8 million or so that it will cost each year to run it.

Construction of the museum took five years. The building, made of red sandstone, Portland limestone, timber and glass, resembles a large greenhouse with a sloping roof. The north side, all glass, looks out on a wood while the south side is used for the stained-glass collection.

The interest on the money Burrell left is being used to add to the museum's holdings, even though the collection is so large that only 40 percent of the works can be displayed at once.

The latest purchase was the Warwick Vase, a 12-foot (3.6-meter) carved stone vessel from the second century A.D. The museum bought the vase, which weighs eight tons and was unearthed near Rome 200 years ago, when it was auctioned by the Earl of Warwick.

Miles Davis in Warsaw: Jumpin' at the Jamboree

By Bryan Brunley

WARSAW — The American jazz great Miles Davis blew his gold and black trumpet into a rare third encore at the close of the 25th Warsaw Jazz Jamboree.

A standing-room-only crowd of 5,000 mostly young Polish jazz fans packed into the Stalin-era "Hall of Congresses" in central Warsaw to see Davis, 57, who was given royal treatment Sunday night by the Polish Jazz Federation.

Davis and the six other musicians in his group — they generally do not do encores — warmed to the Polish crowd, which gave them repeated standing ovations, chanting "We want Miles" and sang the Polish song "May You Live 100 Years."

The jamboree opened Thursday night amid reports that state-run radio and television had been ordered by the authorities to drastically reduce the amount of U.S. and Western music. The Polish musicians, said a Western observer of the Warsaw jazz scene, were determined to protest the naming of Lech Walesa as winner of the Nobel Peace Prize.

Government spokesmen have denied the reports. Walesa won the prize for his leadership of the now-

outlawed Solidarity labor union. The government has called the award a play in the East-West confrontation.

But politics took a back seat at the jamboree, which featured six U.S. groups, the Norwegian saxophonist Jan Garbarek and the West German bass player Eberhard Weiber along with many of the best Polish jazz bands.

Polish television filmed the jamboree, though it was not clear if it would broadcast performances by the Western musicians.

This year's jamboree was the first since the declaration of martial law in December 1981. Last year the Polish Jazz Federation held a scaled-down "jazz maneuvers" instead of a full-blown jamboree.

"The organizers wanted to avoid holding the 25th jamboree last year, since it would have signaled that everything was normal, and they might have faced a boycott by Polish musicians," said a Western observer of the Warsaw jazz scene. Several U.S. groups, including the Art Ensemble of Chicago, took part in the 1982 event.

The Miles Davis group was the high point of this jamboree. Davis,

wearing a fringed red leather jacket, baggy black pants, a black felt hat and dark glasses, enthralled the Sunday night crowd with his blend of jazz and rock.

In the corridors outside the hall before the performance, young entrepreneurs sold Western jazz records for up to 8,000 zlotys (\$83) apiece, along with Miles Davis lapel pins and the official jamboree program, which hailed Davis's appearance in Warsaw as a major milestone for Polish jazz.

"Polish musicians and jazz fans owe his music a great deal," the Polish jazz critic Tomasz Szachowski wrote about Davis in the program. "Miles Davis doesn't have this many friends — great fanatics even — in any other European country." Szachowski noted that Polish jazz has grown despite "difficulties that don't exist elsewhere."

Jazz and other forms of Western music have put down deep roots in Poland, and observers give the quiet, official effort to curb Western cultural influence little chance of success.

Jazz groups thrive in Warsaw and other Polish cities, and Polish bands have long enjoyed a good

Tiny Shetland Stallion Is Sent to U.S. for Stud

The Associated Press

LONDON — A pony measuring 24 inches (61 centimeters) at the shoulder has been flown to the United States to go to stud in California, according to the Sunday Telegraph newspaper.

The pony is a miniature Shetland worth \$2,000 (\$3,000). It is believed to be the smallest pony ever exported from Britain to stud. The stallion and two mares were flown Saturday to the United States, where miniature horses sell for as much as \$100,000, the newspaper said.

NYSE Most Actives				
Symbol	Vol.	High	Low	Change
IBM	1,234,567	125.50	124.75	+0.75
AT&T	987,654	45.25	44.80	+0.45
GE	876,543	32.10	31.90	+0.20
AmEx	765,432	15.80	15.60	+0.20
AmTr	654,321	12.40	12.20	+0.20
AmSt	543,210	10.10	10.00	+0.10
AmD	432,109	8.90	8.80	+0.10
AmE	321,098	7.50	7.40	+0.10
AmF	210,987	6.30	6.20	+0.10
AmG	109,876	5.10	5.00	+0.10

Dow Jones Averages				
Index	Open	High	Low	Close
Indust	2,845.12	2,850.45	2,840.10	2,848.75
Transp	1,234.56	1,240.10	1,230.20	1,238.90
Comp	567.89	570.10	565.40	568.20
NYSE	1,234.56	1,240.10	1,230.20	1,238.90

NYSE Index				
Index	Open	High	Low	Close
Composite	1,234.56	1,240.10	1,230.20	1,238.90
Indust	1,112.34	1,118.50	1,108.10	1,116.75
Transp	567.89	570.10	565.40	568.20
Comp	123.45	125.10	122.20	124.60

NYSE Diaries				
Index	Open	High	Low	Close
Advanced	1,234.56	1,240.10	1,230.20	1,238.90
Declined	987.65	990.10	985.40	988.20
Unchanged	765.43	770.10	760.20	768.90
Total Issues	1,234.56	1,240.10	1,230.20	1,238.90
New Issues	123.45	125.10	122.20	124.60
Volume up	1,234.56	1,240.10	1,230.20	1,238.90
Volume down	987.65	990.10	985.40	988.20

Monday's NYSE Closing				
Index	Open	High	Low	Close
NYSE	1,234.56	1,240.10	1,230.20	1,238.90
Indust	1,112.34	1,118.50	1,108.10	1,116.75
Transp	567.89	570.10	565.40	568.20
Comp	123.45	125.10	122.20	124.60

AMEX Diaries				
Index	Open	High	Low	Close
Advanced	1,234.56	1,240.10	1,230.20	1,238.90
Declined	987.65	990.10	985.40	988.20
Unchanged	765.43	770.10	760.20	768.90
Total Issues	1,234.56	1,240.10	1,230.20	1,238.90
New Issues	123.45	125.10	122.20	124.60
Volume up	1,234.56	1,240.10	1,230.20	1,238.90
Volume down	987.65	990.10	985.40	988.20

NASDAQ Index				
Index	Open	High	Low	Close
Composite	1,234.56	1,240.10	1,230.20	1,238.90
Indust	1,112.34	1,118.50	1,108.10	1,116.75
Transp	567.89	570.10	565.40	568.20
Comp	123.45	125.10	122.20	124.60

12 Month	High	Low	Stock	Div.	Yld.	PE	High	Low	Close	Change
12/82	125.50	124.75	IBM	3.75	4.50	15.0	125.50	124.75	125.00	+0.25
12/82	45.25	44.80	AT&T	0.80	4.00	11.0	45.25	44.80	45.00	+0.20
12/82	32.10	31.90	GE	0.40	3.50	10.0	32.10	31.90	32.00	+0.10
12/82	15.80	15.60	AmEx	0.20	3.00	10.0	15.80	15.60	15.70	+0.10
12/82	12.40	12.20	AmTr	0.10	2.50	10.0	12.40	12.20	12.30	+0.10
12/82	10.10	10.00	AmSt	0.05	2.00	10.0	10.10	10.00	10.05	+0.05
12/82	8.90	8.80	AmD	0.05	1.80	10.0	8.90	8.80	8.85	+0.05
12/82	7.50	7.40	AmE	0.05	1.50	10.0	7.50	7.40	7.45	+0.05
12/82	6.30	6.20	AmF	0.05	1.20	10.0	6.30	6.20	6.25	+0.05
12/82	5.10	5.00	AmG	0.05	1.00	10.0	5.10	5.00	5.05	+0.05

12 Month	High	Low	Stock	Div.	Yld.	PE	High	Low	Close	Change
12/82	125.50	124.75	IBM	3.75	4.50	15.0	125.50	124.75	125.00	+0.25
12/82	45.25	44.80	AT&T	0.80	4.00	11.0	45.25	44.80	45.00	+0.20
12/82	32.10	31.90	GE	0.40	3.50	10.0	32.10	31.90	32.00	+0.10
12/82	15.80	15.60	AmEx	0.20	3.00	10.0	15.80	15.60	15.70	+0.10
12/82	12.40	12.20	AmTr	0.10	2.50	10.0	12.40	12.20	12.30	+0.10
12/82	10.10	10.00	AmSt	0.05	2.00	10.0	10.10	10.00	10.05	+0.05
12/82	8.90	8.80	AmD	0.05	1.80	10.0	8.90	8.80	8.85	+0.05
12/82	7.50	7.40	AmE	0.05	1.50	10.0	7.50	7.40	7.45	+0.05
12/82	6.30	6.20	AmF	0.05	1.20	10.0	6.30	6.20	6.25	+0.05
12/82	5.10	5.00	AmG	0.05	1.00	10.0	5.10	5.00	5.05	+0.05

12 Month	High	Low	Close	Change	12 Month	High	Low	Stock	Div.	Yld.	PE	
12/82	125.50	124.75	IBM	3.75	4.50	15.0	125.50	124.75	IBM	3.75	4.50	15.0
12/82	45.25	44.80	AT&T	0.80	4.00	11.0	45.25	44.80	AT&T	0.80	4.00	11.0
12/82	32.10	31.90	GE	0.40	3.50	10.0	32.10	31.90	GE	0.40	3.50	10.0
12/82	15.80	15.60	AmEx	0.20	3.00	10.0	15.80	15.60	AmEx	0.20	3.00	10.0
12/82	12.40	12.20	AmTr	0.10	2.50	10.0	12.40	12.20	AmTr	0.10	2.50	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
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12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
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12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0
12/82	10.10	10.00	AmSt	0.05	2.00	10.0			AmSt	0.05	2.00	10.0

COMMUNICATIONS TECHNOLOGY

A SPECIAL REPORT — PART I

TUESDAY, OCTOBER 25, 1983

Part II Will Appear
In Tomorrow's Editions

Page 9

Stocks Slide As Investors Get Skittish

By Arthur Howe

NEW YORK — These are treacherous — not to mention, tumultuous — times for computer industry stocks.

While a select few companies like International Business Machines Corp. now enjoy market supremacy and Wall Street acceptance, a burgeoning group of less fortunate firms are locked in a death struggle for profits and solvency in the fast changing market.

The current decline in computer-technology stocks follows a spectacular 10-month rally beginning in August 1982 that saw values of most issues double, and even triple. But in each case the scenario has been roughly the same — a disappointing earnings report or a brokerage house review and suddenly the fragile investor support vanishes.

Even industry favorites like Apple Computer, which has solid earnings and market share, has fallen by 63.1 percent from its year's high. Another popular company, National Semiconductor, reported a 170-fold profit increase for its most recent quarter; yet, the stock retreated 2 1/4 points. This was attributed to the fact that investors expected even higher earnings.

"The market has reacted a lot more severely [to earnings, troubles] than it normally does," said Philip Rettew, a market specialist and assistant vice president of Merrill Lynch.

Companies like Warner Communications, maker of Atari home computer games, set the pattern for the computer-related stocks last December when prices of its shares dropped by 60 percent, from 59 1/2 to 19 1/2, after a surprise announcement of large losses. It is now trading at about 23 1/2.

Then there was Texas Instruments, the Dallas-based maker of minicomputers. In mid-June the company abruptly announced that lagging sales would cause it to lose \$100 million in the second quarter. Within two days the company's stock fell \$3.50 a share, reducing the total market value of its 23.7 million shares by about \$1 billion.

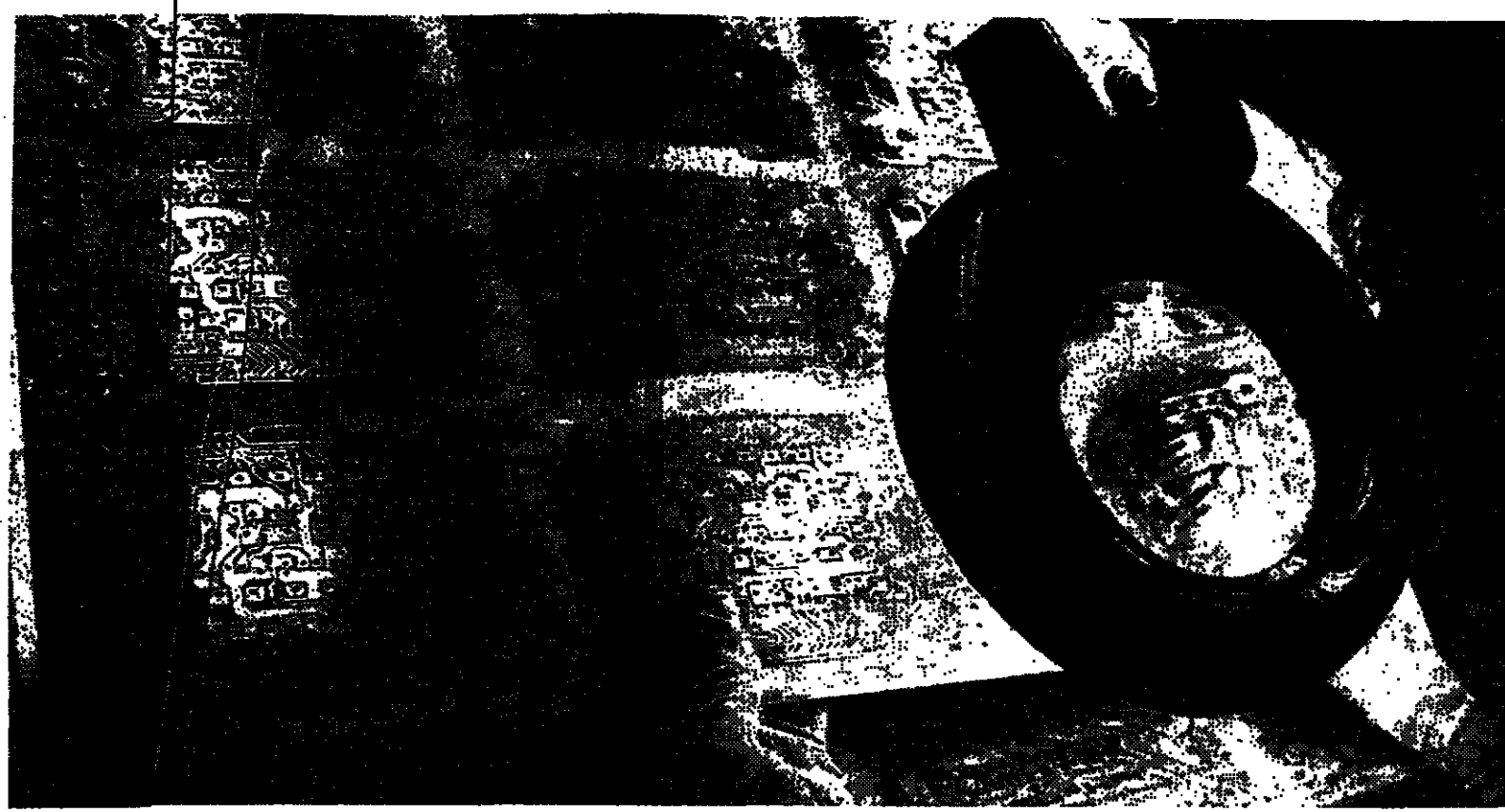
A more recent list of low performers:

- Osborne Computer. Plagued with management chaos, engineering difficulties and production delays, the once high-flying Osborne filed on Sept. 14 for protection from creditors under U.S. bankruptcy laws. A public offering was shelved.

- Fortunate Systems. After going public in March and raising \$95 million amid much fanfare, this software and hardware manufacturer reported a loss of \$3 million on revenues of \$12 million for the second quarter. An even larger loss is expected for the third quarter.

- Victor Technologies. This company decided to

(Continued on Following Page)



INSPECTING THE BOARD — The electronic board, literally the backbone of electronic devices, must be individually inspected for flaws. A technician at the ITT subsidiary SEL's electronic board manufacturing unit in Pforzheim, West Germany, checks the board.

Microcomputer Software: The 16-Bit Success Story

By Jeffrey Tarter

CAMBRIDGE, Massachusetts — Late in January of this year, Lotus Development Corp., a small software company whose president made his living as a radio disc jockey on a rock'n'roll station, began shipping copies of its first program to retail outlets. The program, called 1-2-3, was remarkable chiefly because it integrated several functions — spreadsheet analysis, data management and chart-making — that normally were available only on separate diskettes.

The new program became an almost instant success. Eight months after its introduction, microcomputer owners had bought more than 100,000 copies of 1-2-3, which retails for \$95. On Oct. 10, Lotus Development's founders offered 50 of their company's shares to the public. Investors paid \$6 million for only 13.5 percent of the company. Not all microcomputer software programs do so well, of

course. What is unusual about the Lotus program, however, is that it only operates on a new generation of so-called 16-bit computers — machines that were virtually unavailable to business users until late in 1981, when International Business Machines Corp. introduced its 16-bit Personal Computer.

The distinction between 16-bit microcomputers and their less powerful 8-bit predecessors (8-bit machines are still widely used, incidentally) is a technical one that few business computer users ever bother to puzzle out. Yet it is a difference that software industry experts generally agree profoundly transformed the microcomputer software business in 1983.

Bits are the tiny electronic impulses that computers use to store and process data, programs and screen graphics. As a rule of thumb, the more of these bits a computer can process

at one time, the more powerful it is. Most large mainframe computers gobble up data 32 bits at a time. Medium-size minicomputers chomp away sedately at 16-bit chunks, and desk-top microcomputers traditionally nibbled in 8-bit pieces.

In the fall of 1981, however, IBM introduced its long-awaited Personal Computer — a 16-bit microcomputer. The computer industry reacted with a certain degree of skepticism; one major computer-business magazine wondered if 16-bit machines were going to become "just a new status symbol" without much practical application.

But then IBM sales began to pick up steam. Within a year, IBM had sold more than 200,000 PCs. After 18 months, according to a market analyst, Portia Isaacson, of Future Computing in Richardson, Texas, IBM was selling more

(Continued on Following Page)

Personal Computers: An Industry Shakeout?

By John Markoff

SAN FRANCISCO — The personal computer industry is unnerved.

Six months ago this was the hottest game in town, but now, companies are facing the real prospect of an industry "shakeout."

At a recent conference in San Diego, California, a controversial industry analyst pronounced the dreaded word.

"We talk a lot about 'shakeout,'" said Portia Isaacson, a computer scientist and president of Future Computing of Richardson, Texas. "But the shakeout isn't happening yet."

"We're shook up but not shaken out yet," she said.

Throughout the room, there were sighs of relief. The recent filing for reorganization under bankruptcy laws by Osborne Computer Corp. sent shock waves through an industry that had been one of the few bright spots in the U.S. economy.

The early success of Osborne Computer, begun in 1981 by Adam Osborne, led many to believe that personal-computer makers could do no wrong.

At the 1981 West Coast Computer Fair, Mr. Osborne unveiled the Osborne I. Here was a portable computer, complete with software, at the unheard-of low price of \$1,795.

A little more than two years later the Osborne company was more than \$44 million in debt and seeking the shelter of the bankruptcy courts. Despite Osborne's commanding lead, competitors that made similar portables, such as Kaypro and Compaq, began cutting into the Osborne market within a year.

A lap-size computer, Tandy Corp.'s TRS-80 Model 100, selling for less than \$1,000, was introduced this spring. For Osborne, it was the death knell.

Osborne's demise makes it clear that being an innovator is no longer enough to guarantee success in the personal computer market.

The shakeout already has happened in the home computer market with Atari and Texas Instruments experiencing recent multimillion dollar losses. But Osborne has been the first victim in the professional and business portion of the market. Other high-flyers like Victor Technologies and Fortune Systems have suffered losses recently.

An industry that was started in garages by hobbyists

(Continued on Following Page)

Guess who's setting the standard at Telecom 83?

Hagerty's
People.

COMMUNICATIONS TECHNOLOGY

Personal Computers: A Shakeout in the Offing?

(Continued From Preceding Page)

has grown up. Names of tiny companies like Intsil, MITS and Exidy have been supplanted by names of multinational giants like International Business Machines Corp., American Telephone & Telegraph Co. and Xerox.

A number of factors have combined to alter the horizon for makers of desk-top personal computers, but clearly the most significant development has been the unrivaled success of IBM.

Given IBM's strength it is not inconceivable that the company could shrink from more than 100 personal computer manufacturers to five or six within two years.

The change has come since 1981, when IBM jumped into the personal-computer market. The company wisely decided to imitate Apple Computer by making the IBM Personal Computer an "open system."

This meant that the computer giant actually went out of its way to encourage small and medium-size software and hardware companies to develop products for the PC.

Virtually overnight, a thriving cottage industry sprang up around the IBM Personal Computer. As a result, the PC has become the standard for the second generation of personal computers.

Personal computers that use the IBM PC operating system (the operating system of a computer is a software program that handles all of the system's basic housekeeping functions) can run literally thousands of software programs from business packages to educational software and games.

These computers feature 16-bit microprocessors that allow larger, more sophisticated programs and offer higher performance than did the first generation of personal computers which were based on 8-bit microprocessors. Faster microprocessors and more memory has

meant new freedoms for software developers; they can now create programs that are more accessible to those who are not specially trained or technically skilled.

The evolution of electronic spread sheets used by business and financial planners is a good example.

Early programs like VisiCalc from VisiCorp and SuperCalc from Sorcim, were tremendously popular even though they were unwieldy and slow.

Newer software products such as MultiPlan from Microsoft and 1-2-3 from Lotus Development Corp. are faster, easier to use and have extensive on-line help. Additionally, 1-2-3 has integrated the spread sheet, data base and graphics into one package.

Integration is the latest word in the industry.

In January Apple Computer Inc. introduced its state-of-the-art personal computer, Lisa, which was the product of several years of research and development and \$50 million. Lisa features a "visual" user interface that allows more than one program to be displayed on the computer's screen simultaneously in separate "windows."

Windows can be moved around on Lisa's display and opened and closed as the operator works on new programs and documents.

To make Lisa easier to use, Apple designed it to appear somewhat like a traditional desk top. On the screen, icons appear in the shape of file folders, pieces of paper, a calculator, clock — everything found in a traditional office, including a wastebasket.

To give Lisa, there is a "mouse" — a handheld pointing device with a single button that rolls on a desk top. Mouse movement on the desk translates into the movement of an arrow on Lisa's screen. In order to

give the computer an instruction the mouse is pointed at a command appearing in a menu on the screen.

Lisa has fundamentally changed the way people are asked to interact with the computers. Instead of remembering command strings and typing them at the keyboard, the user simply looks at the screen and points with the mouse.

Lisa generally has been viewed as a spectacular, but expensive, personal computer. Priced at \$10,000 when it was introduced (the price has since dropped to \$8,500) Lisa has not been accepted as readily by Fortune 1000 companies as Apple had hoped.

Advertised as a "Maserati for your mind," Lisa unfortunately was introduced without software to allow it to function with the giant mainframe computers of data processing departments in large corporations.

Despite IBM's inroads into a market Apple had dominated in the past, Apple has not given up. In danger of becoming No. 2 in the personal computer business, it has hired the former president of Pepsi-Cola subsidiary, John Sculley, and decided to fight the marketing war with a huge national advertising budget for a television advertising campaign. At the same time, by lowering Lisa's price, Apple has made it competitive with the IBM PC XT, a version of the IBM Personal Computer that comes equipped with a hard disk permitting storage of 10 million characters of information.

On January 18, Apple is going to remove the veil from Macintosh, a low-cost version of Lisa.

"Mac," which may be priced as low as \$1,500, is reported to be as significant as the Ford Model T automobile. It will put computing within most everybody's reach.

The idea behind Mac is to build a

personal computer that is genuinely simple enough that it can be used without documentation by inexperienced users.

Mac will be a computer the size of a shoe box with a detachable keyboard and a mouse pointing device. It will come with integrated software similar to Lisa's. This time Apple is making sure that outside developers have plenty of time to create software products that will be available on Macintosh when it is first introduced.

The stakes surrounding the introduction of Mac are high.

Mac has been the personal project of Steven P. Jobs, Apple Computer's cofounder and chairman. The existence of the company, which has grown from a garage in California's so-called Silicon Valley to a Fortune 500 company in five years, clearly rides on the new project.

Meanwhile, Apple apparently has started a stampede to the window and mouse design. A number of software companies are working furiously to provide the IBM PC with capabilities similar to those of Lisa and Mac.

VisiCorp and Microsoft, two of the largest makers of personal-computer software, are scheduled to release special software within months. Both companies have gotten into the hardware business as well by offering their own mice to go with their software.

While the personal computer hardware industry has begun to resemble the automobile industry, being dominated by a few large companies, the parallel software business is increasingly looking like the book publishing business — and the record industry.

Electronic Arts, a software game company started recently by a former Apple executive, Tripp Hawkins, is publishing software that is packaged like record albums. Elec-

tronic Arts is taking the similarity one step further. They have started a major advertising campaign that portrays game programmers as superstar personalities just like music stars.

Despite worries about a shakeout, the personal computer industry shows no signs of slowing down. For both technologies and products, the next half year promises to be as exciting as any of the last five.

Coleco Industries announced last week that it began shipping its Adam system. Apple's Macintosh and IBM's rumored Pean home computer will be available shortly, and on the horizon AT&T is on the verge of entering the market.

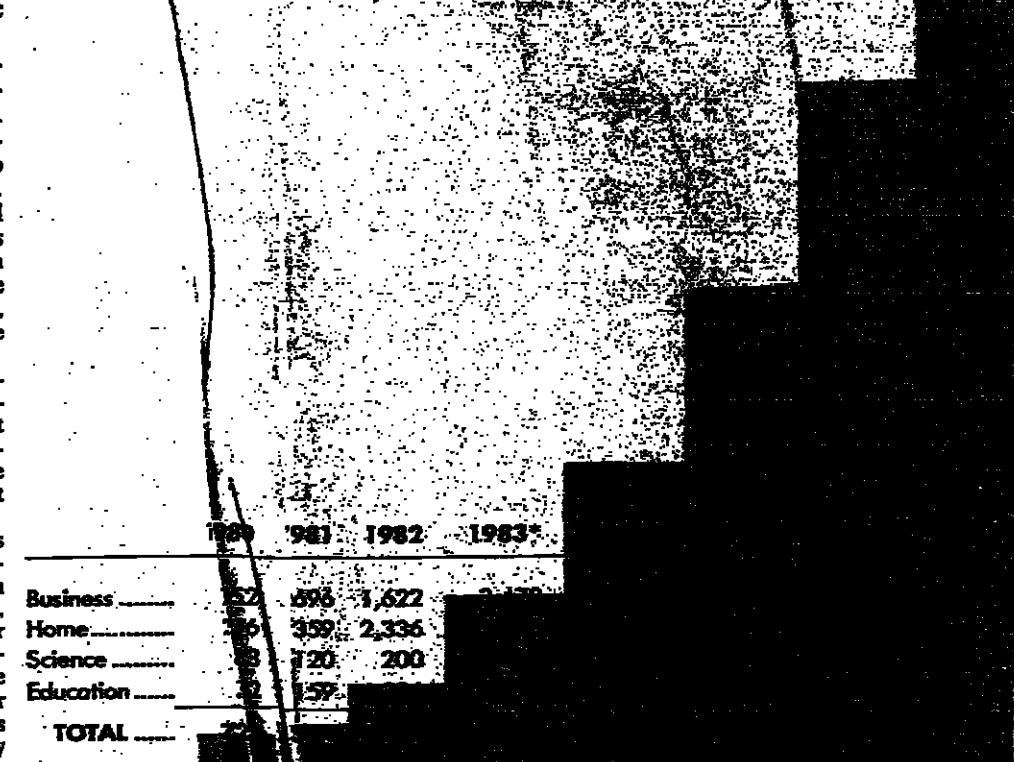
Newly deregulated, AT&T is eagerly looking at providing new electronic information services and it has developed a number of powerful personal computers that will be marketed beginning early next year.

Recently MCI Communications Corp., a long-distance communications provider that competes with AT&T, introduced MCI Mail, which permits personal-computer users to send electronic mail instantaneously anywhere in the United States. In case the receiver does not have a computer, MCI has placed laser printers strategically around the country that will print a copy of the letter and automatically place it in an envelope so that it can be routed via regular mail or special courier. The MCI Mail laser printers can put letters on the customer's personal stationery and even add the writer's signature.

Other information utilities such as The Source, CompuServe and Newsnet, the large data bases that can be connected to personal computers over telephone lines, are offering other communications and information services ranging from interactive games to electronic news.

NUMBER OF PERSONAL COMPUTER UNITS SOLD AND INSTALLED IN THE UNITED STATES

(In thousands of units)



* Estimated installations.
Figures include U.S.-manufactured personal computers installed for personal use as well as U.S.-manufactured single-user processing terminals installed for private use when connected to a computer.
The bar graph represents the total number of units sold and installed from 1980 through 1982 and projections for 1983 through 1987.
Source: International Data Corporation, London.

NUMBER OF PERSONAL COMPUTER UNITS SOLD AND INSTALLED OUTSIDE THE UNITED STATES

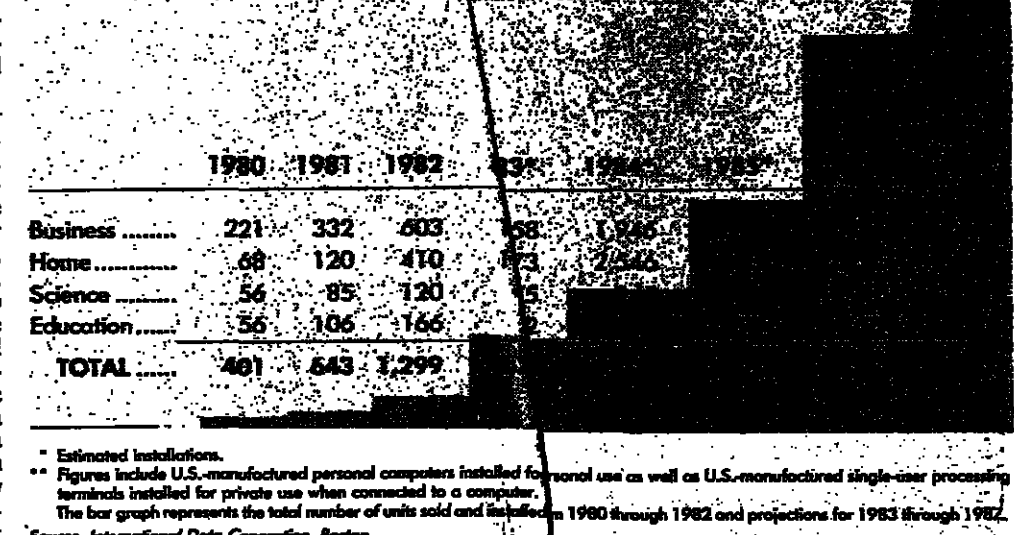
(In thousands of units)



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Microcomputer Software: 16-Bit Success Story

(Continued From Preceding Page)

than 20 percent of all personal computers in the U.S. market and was likely to move a half million units during 1983. In addition, other computer companies began marketing so-called "IBM-compatible" machines that were designed to operate with the same software programs as the IBM Personal Computer.

The growth rate of the emerging 16-bit IBM market did not go unnoticed by independent software developers.

"Last year, everyone was writing software for the Apple," said an industry analyst, Esther Dyson, of Rosen Research Inc. in New York. "This year, it's all for the IBM PC." By year's end, said Gerald Van Diver, who has just published a comprehensive directory of IBM PC software, there will be roughly 4,400 programs available for the IBM PC. That is still far less than the 7,800 software titles that are available for the 8-bit Apple microcomputers. But, Mr. Van Diver

pointed out that it has taken seven years for independent software companies to reach that level for the Apple. New IBM programs have been appearing at a rate of 400 a month this year.

IBM's entry into the market was an obvious attraction to software developers, but equally important was a growing demand by microcomputer owners for more sophisticated programs. Eight-bit machines are unable to work with more than about 65,000 characters of data and program code in their internal memories at one time. This limitation rarely poses a problem for simple, single-purpose business programs, such as word processing, spread sheets, accounting modules and file managers. But more elaborate programs, especially those that integrate several functions, consume greater amounts of memory than 8-bit machines have available. The Lotus 1-2-3 program, for example, requires about 93K bytes of internal memory; some more complex word-processing programs

and graphics packages demand even more.

Since 16-bit computers can handle substantially greater amounts of internal memory — 256K bytes is increasingly a standard — programmers are able to add a variety of new features to programs. These features tend to make software easier to use, both in terms of technical capabilities and "friendliness" to the user.

"The strategy for microcomputer software development has always been to figure out how to consume as little memory as possible," said Chris H. Morgan, president of Morgan Computing, a software publishing company in Dallas that produces programs for 16-bit machines. "The advent of the popular 16-bit machines means that programs with broad consumer appeal can be written in totally different ways now."

"Because of larger memory capabilities," Mr. Morgan added, "programs can operate smarter and faster, and 'user friendliness' fac-

tors can be written right into the software."

Among the features that make 16-bit programs easier to use, Mr. Morgan said, are more elaborate screen displays and graphics, frequent "help" messages that provide advice at various points in the operation of the program and more flexible ways to change formats for displaying and manipulating data.

The greater memory capacity of 16-bit machines has also inspired software developers to begin writing programs that perform several functions at once, like 1-2-3. Because of the limited size of most 8-bit programs, users had to insert a software diskette to perform one function (such as mathematical analysis), then copy the results onto another diskette and load a separate program for translating numerical results into graphs or charts. If these graphs or charts were to be incorporated into a written report or a letter, a user would also have to switch to a word-processing program. Although the

computer itself could perform hundreds of thousands of calculations a second, the need to swap diskettes back and forth often led to frustration and wasted time.

Software companies have been quick to capitalize on this frustration by marketing multipurpose programs that link several commonly used functions. Lotus's 1-2-3 offers spread-sheet analysis, data management and graphics capabilities on one diskette; a rival, called Context MBA, provides these features as well as word processing and some telecommunications capabilities. A few weeks ago, a software publisher called Fox & Keller in Elmwood Park, New Jersey, unveiled a program it describes as "a true management system," an integrated data analysis and graphics package that "offers managers financial control and three-dimensional views of data previously possible only on mainframe and minicomputer systems."

Most of the new integrated programs are designed to operate on the IBM PC and its various clones, but other 16-bit machines have begun to challenge IBM's dominance in the advanced microcomputer marketplace. Apple Computer, Tandy Corporation and Digital Equipment Corporation have also launched 16-bit machines in the last year, and so have many small manufacturers that sell to specialized kinds of business and scientific customers. Apple's 16-bit Lisa computer, for example, offers a very elaborate integrated program designed to perform virtually any data management function a manager might face. Though there is less software available for these machines than there is for the IBM PC, many developers see them as able to generate respectable sales.

Sixteen-bit machines have also attracted software developers from another segment of the industry: minicomputer and mainframe software. According to Joseph Alsop, president of Data Language Corp. in Billerica, Massachusetts, "Sixteen-bit microcomputers aren't that different from low-end minicomputers in terms of the complexity of the software they can support. What we have seen in the last year are literally hundreds of software firms that used to write customized software for bigger machines, and are now going after the microcomputer market."

Mr. Alsop said that many of the software developers who learned programming on 8-bit machines "simply aren't aware of all the interesting and important things a more powerful computer can do." For example, he noted that larger

computers are able to provide complete integration of a company's accounting, inventory and sales operations and can also generate analyses of key ratios and trends for management review.

"The market that has evolved in the last year or two for this kind of program," Mr. Alsop said, "is primarily in businesses that have begun to link together microcomputers into networks or have installed supermicro systems that run conventional micro software." Another application that is ideal for 16-bit machines, he said, is "heavy number-crunching work, like material requirements planning for manufacturing."

Though a good many programs have reached the market that draw on minicomputer and mainframe programming techniques, Mr. Alsop and other industry experts

doubt that the software available to computer users will ever be as rich as the kind of software that is essentially an upgrade of 8-bit software. "You're talking about an enormous investment of man-hours to write programs that are this complex," said Richard Lofin, a Washington consultant who is the author of a guide to high-technology venture capital resources.

"The software industry had to have plenty of stories about programmers who locked themselves in a motel room for six weeks and then emerged with a complete software program," Mr. Lofin said. "To write a good 16-bit program, though, you'll probably end up with a team of programmers on payroll for a year or two, plus a lot of overhead and hardware. To finance this kind of development usually means someone has a year."

come up with venture capital, and that your potential sales have to look pretty impressive."

For this reason, Mr. Lofin expects that it will be a while before software takes the next step, to 32-bits. "Right now, there just aren't that many microcomputer applications that need more than 16-bit capacity," he said. "It may happen, but first you're going to have to have enough customers to justify the development costs."

Mr. Alsop agreed — but with reservations. "If you had told me a couple of years ago that by 1983 we'd all be cranking out 16-bit microcomputer software, I'd probably have given you a good argument about why you were wrong. The way the software business keeps changing, I suppose it's fair to expect at least one revolution a year."

Stocks Slide as Investors Become Wary

(Continued From Preceding Page)

confront IBM directly in the marketplace and it found it too expensive. It lost \$11.1 billion in the second quarter, and another loss of \$11.1 billion is expected in the third quarter. The stock is off 75 percent from its 1983 high, falling from \$22 to \$5.50.

• WICAT Systems. The latest casualty, this manufacturer of 16-byte microcomputers, lost 45 percent of its market value days after it announced an unexpected \$43-million loss in the quarter ending in October. The stock is off 63 percent from its 1983 high of \$18 per share.

• Coleco Industries. Four months after this Connecticut-based computer and toy manufac-

turer shook the industry by announcing that it would begin marketing an office-quality office and computer package for only \$600, the company has been unable to deliver. Manufacturing and engineering problems have been blamed. The stock has been on a protracted slide from its 52-week high of \$65 to about \$31 in recent trading.

All this has spawned what some analysts see as "an industry in turmoil." Raymond F. Devos, an analyst for the Wall Street brokerage firm of Legg, Mason, Wood, Walker, said: "What has happened in computerland suggests that many of these [former] high fliers grossly mismanaged and undercapitalized. They are less like comets than shooting stars. The speculative ex-

cesses of the first half of the year have been decisively correct."

Analysts predicted that the price collapse of computer stocks will continue as industry shakeouts reduce the personal computer field from 200 to roughly 50. Nevertheless, the surviving companies should profit handsomely since sales of home computers alone should be \$2 billion this year and should continue expanding by 50 percent annually over the next few years, according to Future Computing, a market research firm in Richardson, Texas. Another research organization, Yankee Group, based in Boston, anticipates that total computer hardware sales should approach \$7.8 billion in the United States and grow to \$17.4 billion within five years.

Harry Edelson, an analyst who covers computers for First Boston Co., said: "Investors should realize that even in a growth industry like computers there are always going to be casualties."

Edelson believes that it is still early for investors to begin picking over computer stocks that have collapsed; instead, he recommends purchasing companies that supply components to computer manufacturers.

"We worry about the computer company. Pick the suppliers who benefit most," he said. Several on his list include Verbatim, a manufacturer of floppy disks that is listed on the American Stock Exchange; SCI System.

(Continued on Page 16)

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COMMUNICATIONS TECHNOLOGY

Computers Aid Science, Health Research

By Amiel Kornel
PARIS — Lending their intelligence to everything from the design and manufacture of dental crowns to the visualization of the infinitesimal, computers are aiding surgeons, physicians and scientists in expanding the frontiers of health care and scientific research.

The latest applications go well beyond the so-called number crunching and data storage for which digital computers have been renowned since their invention more than 30 years ago. In addition to its rapidity in performing complicated calculations, the computer has an ability to reduce, rearrange, and reconstruct information that is proving to be an invaluable asset in science and medicine.

While many areas of scientific research rely heavily on the use of computers, physicians and surgeons are just beginning to discover how the quintessential 20th-century tool can help their work.

Two dental surgeons from Grenoble, France, demonstrated a computer-based system for making dental crowns recently on French television. Using the techniques of Computer Assisted Design and Computer Assisted Manufacturing, or CAD-CAM, the dentists can prepare a patient's crown in one hour during a single visit, with a precision 10 times greater than that offered by conventional methods.

The procedure looks deceptively simple. An optical probe introduced into the patient's mouth generates a contoured image of the tooth and adjacent area. The computer uses the data to reconstruct a digitalized map. A program then designs a crown based on a predetermined theoretical tooth, taking into consideration the position of the patient's teeth and form of jaw. A second program directs a sophisticated milling machine to make a crown according to the blueprint created by the design software.

Doctors at the Hospital for Special Surgery in New York are developing a similar system for the manufacture of prosthetic body joints, such as artificial knees. These systems will lower medical costs, speed up surgery and ensure better quality control of prostheses, according to their developers.

Not all medical applications are originating in hospitals or academic institutions. MediSoft, a year-old California software firm, is marketing two educational programs that may eventually evolve into clinical tools. "We use mathematical modeling systems to simulate anatomical and physiological portions of the human body," said Dr. Lani Moore Cummings, president of MediSoft, in a telephone interview from Santa Cruz.

One of the programs teaches physicians and nurses how to diagnose and treat heart ailments. After inducing a heart attack in a three-dimensional graphical representation of a beating heart, users prescribe the drug and therapy necessary to treat the resulting arrhythmia. "They must match the right therapy with the right diagnosis and follow the heart's response," Dr. Cummings said.

MediSoft, as well as other research groups in North America and Europe, is attempting to develop a program that will create computer models of the heart based on an analysis of electrocardiograms. Such software would permit a physician to feed a patient's electrocardiogram into a computer and get back an image of the heart, enabling the physician to quickly see its weak areas.

Another of MediSoft's programs simulates the effects of a biolaser. Surgeons use lasers to burn away human tissue and stop internal bleeding. The video simulation duplicates the effects of varying levels of radiation on different types of tissue. "It allows them to develop an intuition" for the intensity and

direction of the laser beam necessary to treat a particular tissue and ailment, according to Dr. Cummings.

He described this educational application as only the first stage in the product's development. The next stage, which he qualified as "a futuristic perception a good way from being realized," would "build intelligence into the laser adjustment itself" during actual surgery.

In addition to flashes of insight and a good dose of luck, scientists have always relied on the empirical in their investigations. For experimentalists, the computer has helped satiate the hunger for information and digest the subsequent mass of data.

The computer's place in physics research is exemplified by the role it plays at the European Center for Nuclear Research, or CERN, in Geneva. "The typical physics experiment nowadays is attached to a computer," said Victorio Frigo, a computer specialist at CERN.

Scientists at CERN use between 200 and 250 computers to do the computation on, and analysis of, the avalanche of data their experiments produce. The machines extend in size from micro-computers located on scientists' desks to larger computers grouped in a computer center. "An experiment can sometimes generate more data than even a computer center can handle," said Mr. Frigo.

But the computer's utility is not limited to the experimentalist. It has provided theoreticians with a means to build and test models in minutes or hours that would once have taken months or even years to elaborate and verify. "You can do things that you wouldn't do by hand," said Mr. Frigo.

Its ability to logically manipulate symbols as well as numbers enables the computer to handle the complex algebraic equations that are part of model-building and testing in most branches of physics. The

full mathematical implications of some equations, even though those equations may be essential parts of physics' theoretical backbone, are sometimes too complicated to be tested manually. The computer has extended the domain of the verifiable.

For example, a 19th-century French astronomer, Charles Delaunay, took 20 years to define and check a set of algebraic equations that describe the position of the moon as a function of time. In 1970, a computer performed the operation in 20 hours. Today, due to advances in computer technology, the time could be even further reduced.

The computer has also extended the domain of the observable. Digitalized image processing and enhancement is offering a more precise and clearer view of phenomena that have long been at the limit of, or even beyond, the scientist's investigative reach. At CERN, for example, computers have recently begun to aid physicists in reconstructing holographic images of the trajectories of elementary particles, the stuff of nuclear research.

Physicists in search of a specific particle use the machines to sift through the millions of subatomic events generated by collisions in CERN's giant accelerator. The computer then reconstructs a two-dimensional digitalized image of the trajectories, from which it generates a three-dimensional hologram. Scientists can even electronically assign colors to specific trajectories in order to aid in the detection and analysis of certain particles.

Computer-based image enhancement similarly assists geologists and astronomers to analyze the photos of the Earth and other heavenly bodies sent back by satellites. Such images are used to identify the distribution of the Earth's natural resources, for example.

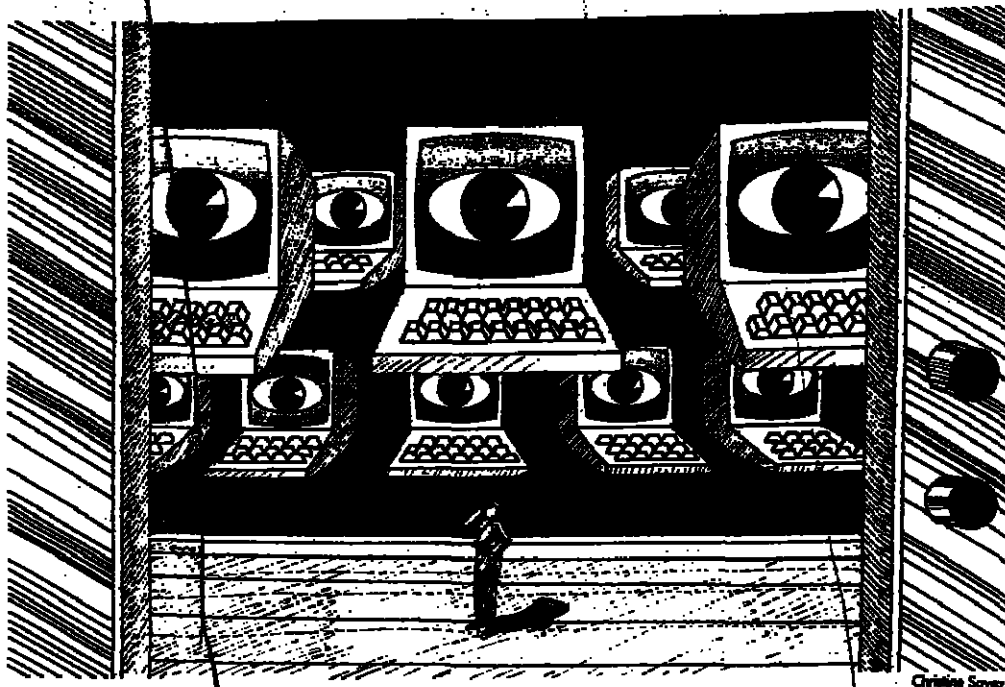
In medicine the process is em-

ployed to improve the diagnostic information offered by X-rays and other, newer, imaging techniques such as nuclear magnetic resonance and ultrasonic radiography. Since 1973 the Computerized Axial Tomographic, or CAT, scanner has been providing doctors with views of cross-sectional slices of the human body assembled from thousands of X-rays.

Scientists also use computers to monitor and adjust experimental conditions and apparatus. Computers' sensitivity, precision, flexibility and unlimited attention span make them suited for the supervisory role. The IBM Israel Scientific Center and the Desert Research Institute of Ben Gurion University at Sede-Boqer are collaborating on a project that uses a computer to control a greenhouse environment near Beersheba at the edge of the Negev Desert. The computer collects data from instruments that measure conditions such as temperature, humidity and the sun's radiation. According to a mathematical model with which it has been pre-programmed, the computer then attempts to ensure the economical operation of the sealed and rotatable greenhouse.

As the Israeli scientists test and revise their models, they should be able to discover the optimal growing conditions for various plants. Their findings could prove critical to the future success of desert agriculture. Scientific applications for computers will pass a new frontier later this year with the launch of Spacelab aboard the United States space shuttle. Spacelab, designed by the European Space Agency in coordination with NASA, will be a self-contained, computer-controlled, multidisciplinary, orbiting laboratory.

Two on-board computers will manage experiments conducted by crew members in life sciences, astronomy, earth observation, and solar physics, to name but a few.



Computing Instant Self-Acceptance?

The Associated Press

LANSING, Michigan — Do you need a little reassurance? Do you want to feel that you are healthy, lovable, attractive, or just plain OK? Now there is a psycho-soothing computer program that offers this kind of help for the overweight and underconfident.

Subliminal messages at available through Expando-Vision, the first product of Stimtech Inc., which is marketing the product using the slogan "Straight to the Mind's Eye."

The messages flash at one-thirtieth of a second on a television screen connected to a home computer. That is faster than they can consciously catch them, but they are perceptible to the subconscious.

"I like my body," "I exercise daily," "My body is healthy," they tell people who want to lose weight. "I'm OK."

For boosting sexual confidence, there is "I see you lovely," "I see me desirable," "I'm attractive," and "I'm OK."

"They are all positive and yet have to be subconsciously aware to respond," said Dr. Wallace LaBene, an Ann Arbor psychologist, professor of educational psychology at Eastern Michigan University and chairman of a board of scientists that developed the Expando-Vision messages.

"Very few people question whether it works," said Michael Erb, Stimtech vice president for marketing. "The two questions we receive most are, 'Is it legal?' and 'When can I get one?'"

Because the messages are not broadcast but rather are supplied by a \$39.95 cartridge through an \$89.95 device plugged in between a home computer keyboard and a television, Expando-Vision does not violate Federal Communications Commission regulations banning subliminal messages, Mr. Erb said. The device will be available by mail order starting Oct. 17. Seventy-five Michigan residents have been testing it.

"There are an awful lot of people out there who want to change their behavior in some way," he added. "With no advertising yet except word of mouth, already we have more than 100 check-in-hand orders. We've had people tell us they went out and bought a microcomputer just so they can use the product."

One of the testers is Karen Pawlovich, an analyst for the state's Department of Management and Budget. "I work in government so I never say anything is absolute," Ms. Pawlovich said. "But I believe the concept is excellent. There's high potential gain and low risk, so I said, 'Go for it.' I think they're nice messages... particularly, 'I'm OK.'"

Taiwan Develops High-Tech Industry

By Donald H. Shapiro

TAIPEI — A specialized industrial park, opened three years ago on a broad plateau 70 kilometers (43.4 miles) south of Taipei, is serving as the linchpin in Taiwan's drive to develop technology-intensive industry.

Living T. Ho, director of the Hsinchu science-based industrial park, said: "Today's Silicon Valley in California grew out of the Stanford Industrial Park set up decades ago by Stanford University. The Hsinchu Science Park aims to play the same role in creating a second Silicon Valley here in Taiwan."

The park was established by the government's National Science Council, where Mr. Ho, a former IBM engineer, concurrently serves as vice chairman. The companies operating at Hsinchu, whether locally or foreign-invested, are all private enterprises. But they are eligible for special government incentives. These include tax benefits as well as financial support, in the form of either loans or minority investment, from government banks.

Currently 34 companies are operating in the 5,000-acre (2,000-hectare) park, and 16 more are preparing for start-up. By the mid-

1990s, Mr. Ho expects 200 ventures to be in operation within the park and numerous spin-offs to be emerging in the vicinity.

To be approved for inclusion in the science park, investment projects must be nonpolluting and involve a high engineering content. Among the industries considered the most welcome are information (including computer hardware and software), sophisticated electronics, precision instruments and machinery and material science.

The largest operation in the park is a wholly owned subsidiary of the U.S. Corp. of the United States, itself a subsidiary of ITT. After manufacturing for a year in temporary facilities, a converted warehouse — Quine in Taiwan last month opened its own plant occupying 145,000 square feet (28,000 square meters). Its sales of computer disk drives and printers are expected to exceed \$40 million this year.

Close behind Quine in sales value is United Microelectronics Corp., a manufacturer of integrated circuit chips. UMC is a joint venture of six local firms that put up a total of \$21 million in investment. With ultramodern imported equipment and technical support

from a nearby government-sponsored electronics research institute, UMC has been able to produce quality telephone, melody and watch chips at a high yield. Most of the components are ultimately exported, but only after assembly by UMC customers into finished products.

Other Hsinchu park successes include a Wang computer subsidiary, making computer peripherals, and such entrepreneurial local firms as Multitech Industrial, makers of Microprocessor microcomputers, Mitac International, (microcomputer design and manufacture, and Microtek International, which manufactures testing equipment and numerical control devices. Microtek, whose founders include three Taiwan-born engineers who had been working for Xerox in the United States, is a prized example of "reverse brain drain."

Mr. Ho cites several advantages that Hsinchu, and the science park in particular, offers high-technology manufacturers. First is the availability of competent but inexpensive engineering talent. "Our earlier stage of economic development was based on our cheap labor," he said. "Now our labor in general is no longer a bargain, com-

pared to lesser-developed countries, but our strong educational system has produced a lot of engineers and technicians — and their take-home pay is only a quarter to one-third that of their counterparts in the United States."

A second advantage is the existence of a multitude of support industries, such as producers of electronics components, motors and plastic casing. This ease of supply also helps to cut costs.

In addition, the Hsinchu park emulates the Stanford example in forging a close relationship between industry and nearby research and academic institutions. The park was purposely located near two technically oriented national universities and a group of government-supported research institutes. Industry in the park may engage professors at the universities as consultants or request the institutes' help with specific research projects.

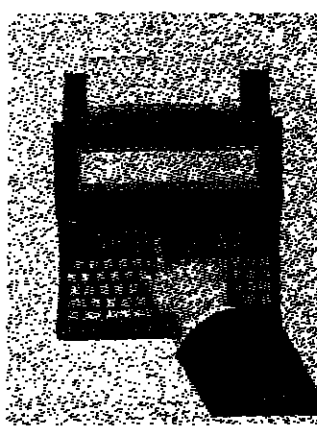
Research and development is also a prime in-house function for most of the companies in the park. The ratio of technical personnel to total employees is 39 percent. Yet, because of the small size of most of the firms and their limited budgets, it is doubtful that they will be pio-

neering major new advances in world technology. Instead, their forte is likely to be improving on existing technology or adapting it to the special needs of specific customers.

Taiwan's development of high-technology industry is not confined to the park. Manufacturers elsewhere on the island have also been moving into higher-technology sectors, with emphasis on microcomputers and computer components, peripherals (such as terminals, disk drives and printers) and software. Taiwan's large TV manufacturers, for instance, are shifting an increasing portion of production capacity to computer monitors and terminals.

Production of telecommunications equipment and its components is expected to receive a boost from a recently announced \$40-million joint venture between American Telephone & Telegraph Co. and Taiwan's Directorate General of Telecommunications to produce digital switching equipment for both the local market and export. AT&T has also agreed to provide technology transfer through its Bell Laboratories.

Of the more than \$3.5 billion worth of electronics exported an-



Gavilan's portable computer with integrated touch panel for quick learning.

Compact Computers: One in Every Briefcase?

A Ronald Eric Wimer

PARIS — The computer industry is poised for the arrival of the latest compact model, the Gavilan, which many believe could set new standards for portable computers.

When the Gavilan, manufactured by Gavilan Computer Corporation, Campbell, California, goes on sale in December in the United States, it will be the most powerful portable computer of its size on the market. Its design also will enable users to add a larger memory to the system. The Gavilan will go on sale in Europe in early 1984.

"We continue state-of-the-art software with sophisticated hardware such as a microfloppy disk with the latest memory," said George Moore, product manager of Gavilan. "It's a quantum leap in the size of the machine and the speed of its operation."

Mr. Moore said the Gavilan is expected to appeal to "the class of mobile professionals; it's individuals with multiple desks."

The computer is first shown in May at the National Computer Conference in California. Europeans saw it this month in Paris at the Salon International d'Informatique, Télématique, Communication, Organisation de Bureau et Informatique. At both events, the Gavilan drew praise that would make IBM shudder with envy.

At 11.4 inches square (29 millimeters) and 3 inches thick, it is slightly larger than portable computers manufactured by Tandy Corp. and Epson, currently the smallest and most popular. Nevertheless, within the industry, the Gavilan is considered a breakthrough; it is the smallest portable with a 16K-byte microprocessor and built-in disk drive.

The first portable computer, the SCAMP, invented 10 years ago by Paul Friedel of the Palo Alto Scientific Center. However, IBM decided not to begin production of its prototype. The market has not been supplied largely by Osborne, which makes two categories of portable computers: memorandums exceeding 100 kilobytes and Epson and Tandy, who make smaller, less expensive models.

Growth in the market for all portable computers is expected to be phenomenal as it has been in pocket calculators during the last 10 years. A recent industry report published by Infocorp, a California-based market research firm, projects that demand for mobile computers will grow nearly 1,000 percent in five years, from 527,000 units in 1982 (valued at \$372 million) to 5.1 million units in 1987 (valued at \$3.1 billion).

"Just as calculators have now become indispensable, we will find that what I call kneecap computers will become indispensable to businessmen who want to work at home and during business traveling," said Seymour Martin, president of Computeworks, a computer store in Westport, Connecticut. "In five years there will be a portable computer like the Gavilan in every businessman's briefcase."

Portable computers allow people in business to make complex calculations or edit reports outside the office. Traveling journalists can write stories on their computers while flying from city to city, sending copies to their editors by telephone. Shipping managers can re-

cord deliveries electronically at a loading dock, then transmit them to the company's main computer.

For the past few years, people needing immediate, daily access to words and numbers have been using personal desk-top computers. Citicorp, for instance, recently gave executives in its international division IBM PCs. Computers take with them all over the world. However, the large personal computers have to be packed in boxes to be taken on trips.

The industry generally classifies mobile computers in three categories based on size and computing power:

• Hand-held computers, in essence calculators capable of complex mathematics. Powered by batteries, they are about 7x3 inches in size, have a calculator-style keyboard and can display one to four lines of text on a Liquid Crystal Display like those used in digital watches. Most have memories of about 2 kilobytes.

• Portables, which are more functional than hand-held computers and more mobile than desk-top computers. They are small enough to fit in a briefcase, have a full-size typewriter-style keyboard and can display four to eight lines of type on a Liquid Crystal Display. Power is provided by internal batteries. They have programs for storing addresses and appointments, storing and editing up to 40 pages of text and performing the same mathematical calculations as hand-held computers.

• Transportable computers, which have small television-style screens and full-size typewriter-style keyboards and weigh about 18 pounds (8 kilograms). These computers perform the functions of any medium-size office computer. They are powered by electricity and are generally too cumbersome for use on a train or airplane. However, transportables have specially designed packages that allow them to be taken easily from one location to another.

Adam Osborne's Osborne I was the first computer that could fit in a normal attaché case. That model was followed this year by the Executive. Despite the success of its initial product, the company has been victim to competition. On Oct. 14 of this year, Osborne filed for reorganization under Chapter 11 of the U.S. bankruptcy laws.

Osborne's success induced other companies to manufacture portables. Some improved slightly on Osborne's design and market one aggressively. Other companies constructed portable versions of successful nonportable computers. For example, Compaq's Compaq is a portable version of IBM's Personal Computer. Although Compaq has been on the market for a little more than a year, it is already selling as well as the Osborne I and the Executive.

Inglis, the Computerworld Inc. of Connecticut has sold 400 Gavilans. Mr. Martin, who chose the Gavilan, said, "At this point, from what I have seen, it is the only model of quality."

Mr. Martin has sold the Compaq to business executives who are attracted to it because, like most portable computers, it can be used

Battle Lines Are Drawn Over 2 New Disks

By Mark Schreiber

TOKYO — Even as the computer industry's 8-inch (20.5-centimeter) standard for floppy disks is fast being replaced by the 5¼-inch "diskette," disk-drive manufacturers in Japan are busy pushing two rival formats destined to become the next generation of memory-storage devices.

With exterior shells of hard plastic, they resemble thin versions of music cassettes. The most advanced versions can hold more than one million and with technological improvements, they are expected to be at least double that figure in the next three to five years.

Floppy disks are the most popular means of information storage for stand-alone personal computers, in the office and at home. They are sold as part of systems already installed in a computer's chassis. They are also enjoying brisk sales separately, especially for hobbyists upgrading the performance of home personal computers.

The growth in desktop and portable computers has been accompanied by a spectacular rise in demand for the 5¼-inch floppy disk drive. Owners of personal computers, the mainstay of the smaller floppy market, account for nearly half of all users. The larger 8-inch format, which held more than half the market in 1981, is expected to shrink to around 40 percent by the end of 1984 and continue to decline thereafter.

With the spurt in the 5¼-inch drive sales has come a large jump in the number of original equipment manufacturers, known as OEMs, with such firms as Teac, a company known for its audio equipment, joining the ranks of Alps, Canon, Epson, Toshiba and others. These drives are supplied to customers for prices as low as \$100 in quantity purchases. Stand-alone disk drives, designed to work with well-known U.S. personal-computer models such as the Apple II, are also selling well, with importers able to undersell their brand's own disk drive unit by several hundred dollars.

Currently it appears that only two micro floppy formats are in the running. Sony first announced its 3.5-inch format in December 1980; details of the rival 3-inch compact disk, jointly developed by Hitachi and Matsushita, were made public about one year later. Size of the disks differ only slightly.

The hard plastic shells, common to both 3-inch and 3.5-inch disks, were designed to prevent mishandling, one of the main reasons for disk failures. While the hard shell will not eliminate this entirely, it does afford better protection than the flexible

"Floppy disks are the most popular means of information storage for stand-alone personal computers, in the office and at home. They are sold as part of systems already installed in a computer's chassis. They are also enjoying brisk sales separately, especially for hobbyists upgrading the performance of home personal computers."

paper shell used for conventional 8-inch and 5¼-inch floppy disks.

Another innovation is a cover for the "slot," the section where the magnetic heads make contact with the rapidly spinning disk. This prevents dirt from entering or soiling the surface by accidental touching.

Drawbacks of the 3-inch disk are said to be its significantly smaller disk area — 2.76 square inches as opposed to 4.1 square inches for the 3.5-inch disk. Both formats can be produced for compatibility with 5¼-inch software.

Disk speed is 300 revolutions per minute for the 3-inch, 600 rpm for the 3.5-inch disks. An engineer at Sony's Atsugi factory in Kanagawa, Japan, where the 3.5-inch drives are being produced, remarked that "it's just a matter of time until we'll be seeing entire new systems built around the micro floppy drive." Following on the heels of Sony's own personal computer model was Sord, which introduced one of the first portables using the 3.5-inch floppy drive.

Overseas, Hewlett-Packard became the first major U.S. buyer of the Sony format. In Europe, Computer Devices launched its DOT computer last November. This portable model uses the 3.5-inch format and is compatible with the IBM Personal Computer. Tandon, a major U.S. drive manufacturer, also elected to go along with the 3.5-inch format.

There was a general sigh of relief here when IBM announced its decision in September to withdraw its own 4-inch format.

Given the dynamics of today's computer market, can the two leading micro systems coexist? Some think a winner and loser must emerge from the fray, and if the 8-inch and 5¼-inch floppy disks are examples, this would be true. Many in the

industry feel that format struggles can only be detrimental to consumer confidence.

One problem is that Japanese manufacturers have always readily accepted a standard when imposed upon them from a large overseas market such as the United States. But they are less willing to back down before domestic rivals.

However, the battle lines have been drawn between some formidable opponents, and should the outcome become a matter of loss of "face," neither side may be willing to give in.

A front-page story in the Tokyo newspaper Densha Shimbun on Oct. 11 reported that Apple had concluded a contract with Sony to use the 3.5-inch micro floppy drive in forthcoming models. The article also stated that IBM, Fujitsu, NEC and other major computer firms were favoring the 3.5-inch design. Nevertheless the article concluded that the rival 3-inch format still had enough backers to retain a hold on the marketplace. An official in Japan's Ministry of International Trade and Industry, referring to the videocassette recorder market, was quoted as saying, "It might be too late to avoid the same kind of two-format situation that has developed with VCRs."

Few of the majors have come to a public decision regarding either of the micro floppy formats for use in their personal computer models.

An annual electronics show in Japan, which opened October 6, saw more than a dozen manufacturers displaying models of the two disk formats, either as integral parts of their personal-computer models or as separate drives.

Computer models incorporating the 3-inch compact disk format included three models from Hitachi. Sharp's X11D personal computer incorporated a 3-inch disk with a capacity of 320 kilobytes, adequate for running such business oriented programs as CP/M, one of the most widely used 8-bit

micro computer software formats. A second 3-inch disk drive, installed as an option in the Sharp computer, retails for around \$250.

Sharp's PC-5000, a portable computer and printer system weighing a little more than four kilograms (less than two pounds), uses a 128 kilobyte magnetic bubble memory but is also designed to interface with an optional 3-inch compact floppy drive unit.

Sony's newest personal-computer model featured a 3.5-inch drive with a capacity of 280 kilobytes, with a second drive available for \$225. (Cassette recorders, still used for program loading and storage on budget computer models, retail for around \$60).

Another firm favoring the 3.5-inch Sony format is Sanyo, which expects to have drive models on the market by next summer.

Matsushita, which developed the 3-inch format with Hitachi, had no consumer versions on display, but had several OEM models, including a double-density version with 500 kilobyte capacity.

A spokesman at Epson said that company would begin 3.5-inch drive sales, possibly within this year but no later than next spring. He added that Epson would be on the market with a double-sided 3.5-inch version before Sony.

Alps, a major OEM manufacturer of electronic components, displayed prototypes of both 3- and 3.5-inch formats, but has made the decision to go with the 3.5-inch format first. A spokesman reported that the company would be ready to begin shipments as soon as January of next year. Canon meanwhile displayed prototypes of both formats but had no comment on marketing plans.

Use of such innovations as direct-drive mechanisms, layered circuit boards and smaller motors has reduced dimensions and weight of 5¼-inch drives now considerably. Some of the most compact are now barely 1.2 inches high, with a storage capacity of one megabyte.

The proponents of the new generation of micro floppy disks however argue that their format, still in its infancy, promises plenty of room to grow. In March of this year Sony announced the development of a recording method that employs a new type of perpendicular magnetic recording with a W-shaped single pole head. If realized, this would give the new medium a storage capacity of four megabytes — as much as many of the so-called "hard" disks now in use for office systems.

The Future

The future of telecommunications rides on the promise of digital technology.

For the past century, virtually all communications—voice, data, graphics, image—was based on analog technology. The transmission and routing of all information was done in the form of electrical waves in varying amplitude and frequency.

In the 1960s, the introduction of computers to telecommunications networks increased the efficiency, flexibility, and capability of communications systems. But this was only an indication of the coming revolution.

Northern Telecom set off the revolution with an announcement in 1976. Applying its expertise in the key technologies of microelectronics and software, Northern Telecom became the first corporation to commit

to the introduction of a complete family of fully digital switching and transmission telecommunications systems.

That commitment brought about the effective merger of the telecommunications and computer industries. Since then, every major telecommunications manufacturer in the world has followed Northern Telecom's announcement with their own. And, today, they continue to follow Northern Telecom's lead.

Northern Telecom's worldwide digital leadership is based on its commitment to research and development. The corporation annually spends more than nine percent of its revenues on R&D and has invested more than one billion dollars in R&D over the past decade.

Northern Telecom promised that our future would be a Digital World*. In fact...

and The Present.

It is delivering the future today with the broadest and most proven line of fully digital systems of any company in the world. Since the introduction of its first fully digital switch in 1975, organizations in 50 countries have put in service or ordered thousands of Northern Telecom's DMS or SL systems to serve the equivalent of more than 14 million telephone lines. No other company can match this record of global success and experience as a developer, manufacturer, and supplier of fully digital telecommunications systems.

Northern Telecom's customers include all major telephone companies across North America, including Bell Canada, AT&T and its operating companies, the specialized common carriers, the U.S. military, the health and hospitality industries, educational institutions, governments at all levels, banks and other financial organizations, businesses large and small, and government PTTs in Europe, the Middle East, Africa, Asia, the Caribbean, and Latin America.

Technology does not stand still. Northern Telecom is extending its leadership in digital telecommunications by developing new integrated circuits and software to evolve and enrich our proven systems. And we keep expanding our product families to serve our customers.

The modularity of our hardware and software enables us to evolve the capabilities of our systems. We avoid the potential of rapid obsolescence that has caused other companies to speak of their product "generations". We protect our customers' investments by evolving their systems with the progress of technology. By this, we set new performance standards as targets for our competitors to strive for.

These are the digital telecommunications products of tomorrow, available from Northern Telecom today:

DMS*

Central office switches route telephone calls within the network. Northern Telecom's DMS (Digital Multiplex Systems) Family comprises switches that can economically handle from a few dozen lines in a rural area to the sophisticated, high-capacity systems needed for as many as 100,000 telephone lines in cities.

The flexible design, dispersed processing, and remote modules that can be located away from the central switch, make it easy to expand an installed DMS switch as new capacity or features are required.

The first of Northern Telecom's computer-controlled, fully digital DMS switches were introduced in 1977. That's seven years of experience in developing, evolving, producing, installing, and servicing these sophisticated, compact, reliable, and cost-effective systems.

DMS-1

The Digital Multiplex Systems most widely used by telephone companies in rural areas. DMS-1 can serve up to 256 lines over just four pairs of wires. There are currently 2,000 DMS-1s in operation to provide thousands of telephone subscribers with economic, improved service. The DMS-1A, and a new system called the DMS-1 Urban, can handle 512 and 544 telephone lines, respectively.

DMS-10

DMS-10 can handle the needs of smaller communities requiring service for up to 8,000 telephone lines. The DMS-10M is a specially designed, compact version housed in a mobile cabinet on wheels. The packaged design virtually eliminates the need for engineering by telephone companies, permitting rapid and unassisted installation. DMS-10 also features Remote Equipment Modules to extend economically the capabilities of the central switch to surrounding areas.

More than 700 DMS-10s are in-service, including some 140 switches for 20 of AT&T's operating companies, and hundreds of other telephone companies across the U.S. and Canada, and in several other countries.

The DMS-100 Family

The flexibility of Northern Telecom's modular hardware and software architectures has enabled the corporation to modify its large digital switches to serve all the different roles in the telecommunications network, and to meet the special requirements of particular customer groups, new markets, or countries.

For example, Northern Telecom has licensed its DMS-100 Family technology to two Austrian manufacturers to develop switching systems for that country. The corporation also licensed this technology to a Turkish manufacturer to produce DMS switches for Turkey's PTT. Northern Telecom has developed special features required by the U.S. military, the specialized and resale common carrier industry, and for cellular mobile radio-telephone system operators. There are now some 550 DMS-100 Family switches in-service or on order.

Reflecting the quality, reliability, and availability of Northern Telecom's DMS, AT&T's telephone operating companies have become major customers for these systems. AT&T has recommended the DMS-1, DMS-10, DMS-100, DMS-200, and DMS-100/200 for use and has signed supply contracts with Northern Telecom. These contracts will be transferred to the operating companies when they are divested in 1984.

The DMS-100 Family of switches, when first introduced in 1979, offered about 300 features. Today, as new capabilities and members of the family have been added, the list of features is more than 1,000. And the total continues to grow while other manufacturers are still introducing their basic systems.

DMS-100 can meet the needs of larger communities and cities needing a big switch for local calling. DMS-100 can serve up to 100,000 telephone lines and, with its Remote Line Modules, can economically provide service to smaller communities in surrounding locations.

DMS-200 is a toll switch that can handle 60,000 trunks (long-distance) circuits.

DMS-100/200 is a large switch combining local and toll capabilities.

DMS-100 Scope Dial was developed to meet the special needs of the U.S. Air Force which chose Northern Telecom's switching for its Scope Dial program to modernize telecommunications on its bases around the world. DMS-100's very-large capacity, proven reliability, advanced digital switching architecture, and potential for significantly reducing telecommunications costs, meets the rigorous requirements of the U.S. military's upgraded Automatic Voice Network (Autovon) and the global military network for telephone service.

DMS-100 Scope Dial switches are now installed at the Vandenberg base in California; Osan, Korea; Wright Patterson, Ohio; Eielson, Alaska; Hill, Utah; and four more are on order or are being installed.

DMS-200 Autovon is a special configuration of Northern Telecom's toll switch to meet the demands of the U.S. Department of Defense, military departments, and other users in the Autovon military global communications network. Five DMS-200 Autovons have been installed in the U.S.

DMS-250 was developed for specialized and resale common carrier companies in the U.S. such as Satellite Business Systems and MCI Communications. It enables these companies to benefit from, and to offer their customers the benefits of, the Digital World.

DMS-300 is an example of Northern Telecom's experience in designing systems for international telecommunications. This large gateway switching system connects a country's telephone networks to the international telecommunications grid. DMS-300 is currently being used by Teleglobe Canada.

DMS MTX is the newest member of Northern Telecom's DMS Family. The DMS MTX (Mobile Telephone Exchange), introduced in 1983, is a part of the cellular mobile radio-telephone system being offered by Northern Telecom working with the General Electric Company in the U.S. As an example of the flexibility of DMS, customers who have already installed DMS-100, DMS-200, or SL-100 (large PBX) switches can add the cellular mobile radio-telephone capabilities to their existing systems.

TOPS* (Traffic Operator Position System) is a fully integrated, automated system for telephone operators that provides them with privacy, comfort, and ease of operation, and offers the telephone company considerable efficiencies and cost savings.

MAP* (Maintenance and Administration Position) is a unique capability offered as an integral part of the DMS-100 Family, comprising an intelligent terminal for use in communicating with the switch to analyze and diagnose its performance. MAP can examine the system from an entire frame to a portion of a telephone line card.

SL* Family

Northern Telecom's SL Family of digital business communications systems can meet the needs of organizations for 30 to 30,000 telephone lines. The corporation was the first to introduce integrated voice and data handling capability and has become the leading international supplier of digital PBXs and data packet switching systems.

The SL Family will serve as network controllers for voice, data, and other forms of information in Northern Telecom's OPEN (Open Protocol Enhanced Networks) World*, a program announced in late 1982 to provide new digital systems, features, and terminals for efficient information management systems. OPEN World will enable Northern Telecom's switching systems to

connect the corporation's digital networks and terminals with networks and devices produced by other vendors, giving organizations the freedom to choose diverse systems that will most effectively meet their requirements for information handling.

SL-1

Northern Telecom's SL-1 PBXs can handle integrated voice and data requirements for small organizations needing as few as 30 telephone lines, to large businesses with up to 5,000 lines. The corporation is investing tens of millions of dollars annually to evolve and enhance the technology and capabilities of SL-1.

SL-1s are on order or in-service to handle 2.6 million telephone lines in 45 countries. Manufacturers in the United Kingdom, Sweden, Italy, and Korea have received licenses to manufacture and market SL-1.

DMS-100

Larger organizations can benefit from Northern Telecom's advanced digital business communications systems technology by installing an SL-100. SL-100 can serve up to 30,000 telephone lines, making it the largest digital PBX available today. This PBX is based on Northern Telecom's proven DMS-100 system.

ESN

Northern Telecom's Electronic Switched Network (ESN), using SL-1 or SL-100, can link these PBXs and those of other manufacturers in sophisticated, cost-effective networks of 2 to 100 locations across the street or across a continent.

ESN's Communications Management Center (CMC) provides management with centralized control of its telecommunications network. CMC constantly records and analyzes telephone traffic, permitting changes to be made to the network as required. CMC's management features include user-billing and network-directory capability.

Other features, such as least-cost routing, can substantially reduce network costs by automatically finding the least expensive route for every call.

SL-10

The SL-10 bundles data in packets and digitally addresses and transmits the information at high speed with other users' data also bundled in packets. For most users, the elimination of the need for dedicated lines and charges only for transmission time used, can mean substantial savings.

SL-10 supports communications interfaces and protocols from many computer systems so that different machines in the network can communicate with one another. SL-10 networks are designed to grow as the need for data connections and traffic accelerates.

SL-10 forms the backbone of the Canadian Datapac and West German Datanet-P networks. In the U.S., the Federal Reserve System uses an SL-10 network to handle funds transfers of more than \$100 trillion per year. Other SL-10 users in the U.S. are Bankers Trust Company and Contel Network Inc. Internationally, SL-10s have been chosen for installations in the U.K., Hong Kong, Switzerland, Portugal, the Republic of Ireland, Belgium, and Austria.

Transmission Systems

Digital transmission systems are the threads which bind the Digital World. Transmission systems carry information between points. Voice or data is carried from the home, factory, or office, or between central office switches by copper wire, coaxial cable, radio, and glass fibers to the telephone company or private network switches, and routed to the caller's destination.

Increasingly, optoelectronic systems incorporating fiber optics and laser technology are being used to transmit simulta-

neous digital voice and data signals through the global telecommunications networks.

DE-4E

Channel banks facilitate a cost-effective and efficient transition to the Digital World. Front-end devices converting analog signals to digital and vice-versa, they make digital systems and products compatible with older generations of analog equipment.

Northern Telecom is the second largest manufacturer of channel banks in the world and the DE-4E is one of the most proven and reliable digital products available today.

PLC-1

Northern Telecom's Private Line Concentrator provides businesses and other organizations with the means to reduce dramatically the number of leased lines required in their voice communications networks, cutting line costs by as much as 50 percent. PLC-1 also provides network usage data for improved management of the network.

TI Mini

A TI Mini amplifies and regenerates voice and data signals as they are carried through the transmission systems. With its 24-channel capacity, the TI Mini repeater is designed to meet AT&T specifications.

TIC

The TI Mini's brother, the TIC has all the features of the smaller system with twice the capacity.

Digital Radio

Digital signals for voice, data, and video can be transmitted through the air. Northern Telecom's expanding family of digital radios currently includes 4ghz and 8ghz systems.

Optoelectronics

Northern Telecom has been developing and installing fiber optics systems since the early 1970s and continues to lead in advancing optoelectronic technology. We have supplied over 150 fiber optic transmission systems, the equivalent of more than 62,000 miles of fiber. Lightwave communication through glass fibers is practical and economical for voice, data, and video applications.

The successful application of fiber optics systems to digital telecommunications means longer transmission ranges of up to 30 miles without amplification by repeaters. Fewer repeaters means less field electronics, higher reliability and lower installation and maintenance costs. Glass fiber is smaller and lighter than conventional cable systems and is free from electromagnetic interference.

Northern Telecom offers complete optical fiber transmission systems, including single-mode and multimode fiber and compatible components and systems' designs custom-tailored to meet present and future customer requirements. In Saskatchewan, Canada, for example, Northern Telecom is working with Saskatchewan Telecommunications, the province's telephone company, to produce and install a 2,000-mile fiber optics network. This digital system is the longest fiber optics network being put in service, in the world. It will provide integrated voice, data, and video (cable television) services to customers over 100,000-square-miles.

For more information on Northern Telecom and its products contact: Northern Telecom (U.K.) Ltd. Langton House, Market St., Maidenhead, Berks., SL6 8BE Tel: (628) 72921.

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COMMUNICATIONS TECHNOLOGY

Sharp Increase Projected in Demand for Integrated Circuits

By Paul Kinnucan

BOSTON — The year ahead promises to be a heady time for makers of integrated circuits. For one thing, industry analysts are projecting sharply increased demand for the tiny silicon chips that are the building blocks for electronics from microwaves to large-scale computers. For another, a new generation of "super-microcomputer" chips being introduced by the industry promises to open vast new markets by putting unprecedented computational power on the desktops of users.

Sales of integrated circuits worldwide (excluding Japan) are expected to rise for the first time in three years, reaching \$8.25 billion in 1983, according to the U.S. Semiconductor Industry Association (SIA) in Cupertino, California. That figure would represent a 28-percent rise from the depressed levels of the past three years, when industry revenues remained virtually flat. The SIA projects that industry revenues will continue to grow 22 percent to 28 percent a year through 1986 and perhaps beyond. Fueling the growth is the world economic recovery and the emergence of new markets — notably for personal computers.

To meet the expected demand, chip makers are adding production capacity, reopening production lines closed during the recent recession and building new lines.

Demand already is outpacing supply. Lead times on critical components, such as microprocessors, have stretched to several months. Failure to add capacity fast enough could put a company at a competitive disadvantage. Adding capacity too quickly could hurt margins.

U.S. manufacturers face competition from Japan. Japanese companies wrested two key markets — consumer circuits and computer memory chips — from U.S. companies and they are known to be looking at other key markets, such as microprocessors.

U.S. companies have taken steps in the past two years to improve production. They have become more

efficient in production and inspection, enabling them to match the Japanese in quality and cost of the final products. In addition, they have begun to cooperate in research and development to remain competitive with Japanese companies who benefit from government-supported research. For example, 10 U.S. computer and semiconductor firms early this year created the Microelectronics and Computer Technology Corp., a jointly funded research firm.

After nearly being pushed out of the market for dynamic RAMs — the most popular type of memory chip — U.S. companies have recaptured 50 percent of the domestic market for these chips, although Japan leads worldwide. "The war's not over," said Mike Kurbiak, manager of market research at the U.S. Semiconductor Industry Association.

Even with the production improvements, some observers question whether U.S. companies can compete against the Japanese in an all-out price war. The Japanese can better afford to cut prices to gain market share. This is because the Japanese are vertically integrated: They make not only the chips but also the more profitable devices on which the chips are based. U.S. chip makers make chips.

Some U.S. chip makers are moving toward integrating vertically. For example, Texas Instruments, the world's biggest independent chip maker, is developing a market for home computers based on its microprocessor chips. The market has not emerged as fast as Texas Instruments had anticipated, and the company reported a staggering \$183-million loss on its consumer operations in the second quarter this year — its first quarterly loss in three decades.

The big technological story of 1983 is the increasing levels of integration being achieved by the industry. For example, the industry is introducing a new generation of very large-scale integrated (VLSI) digital chips that are expected to form the basis of desktop computers comparable in power to some mainframe computers. One is the supermicroprocessor which can handle data in 32-bit chunks instead of being limited to 16-bit

or 8-bit chunks. Until recently, only so-called super-microcomputers and mainframe computers could handle data in 32-bit chunks. This new generation of 32-bit microprocessors will be able to approach large computers in processing speed and memory-addressing capability — several billion bytes (8-bit words). To handle the large memory, the new chips incorporate sophisticated memory management.

Intel, the leading microprocessor maker, is expected to introduce a new 32-bit microprocessor next year. The new model 386 device is expected to be less advanced than the technologically ambitious but unsuccessful model 432 32-bit processor introduced two years ago. By that time, all of Intel's competitors will have announced their products. Zilog and National Semiconductor announced 32-bit chips in August and October, respectively, and Motorola, the world's biggest semiconductor maker, is expected to introduce a 32-bit processor in December. Meanwhile, several computer makers have also announced 32-bit processors, including Digital Equipment Corp. and Hewlett-Packard. Western Electric also makes a 32-bit processor originally intended for phone companies but that could appear on the open market.

With the introduction of the 32-bit computers, the industry is also introducing a new generation of dynamic random-access-memory (RAM) chips — the basis of main memories in most computers. The new generation stores 256K bits of data — four times as much data as the current generation of 64K dynamic RAMs. (The symbol K represents 1024 bits of data in computer terminology.) Already Fujitsu and Western Electric are delivering production quantities of these chips to customers. Most of the other companies are expected to begin volume production of 256K RAMs next year. By early 1986, they are expected to supplant 64K chips at the top of the market. Meanwhile, the next generations of one-megabit and four-megabit RAMs are being developed in the laboratory.

VLSI consumer chips are also beginning to make their appearance. A set of five chips introduced by

Standard Elektrik Lorenz (SEL), the West German subsidiary of ITT Corp., this year contains most of the circuitry needed to build a TV set. Deliveries of the chip set, which contains more than 100,000 transistors, is expected to begin next year to Zenith and other TV makers. Ferranti has packaged an entire FM radio on a chip. The coming year will undoubtedly see the circuitry for other popular consumer items, such as tape recorders, packaged on a few chips, or perhaps on a single chip.

This year has seen the coming of age of semicustom logic — half-finished LSI (large-scale-integrated) chips that can be tailored by the manufacturer or the customer to suit a particular application. They have become popular because they make it economically feasible to use large-scale circuit integration in low-volume applications.

The last year has seen a torrent of CMOS chip introductions ranging from memories to microprocessors. Immos, for example, has announced that it will produce a 256K-bit dynamic RAM based on CMOS technology. CMOS versions of standard logic chips are now available from the leading semiconductor manufacturers. The leading companies are adding CMOS production capacity, by converting their existing NMOS lines or building new lines. "Everything is coming out in CMOS," said William I. Strauss, vice president and manager of market research at Integrated Circuit Engineering, a consulting firm based in Scottsdale, Arizona.

The reason for the growing popularity of CMOS circuits is not hard to find. CMOS circuits, based on complementary combinations of n-channel and p-channel MOSFET transistors, consume only one-tenth as much power as their NMOS counterparts (NMOS circuits — currently the dominant type — are based primarily on n-channel transistors.) Because of their low-power consumption, CMOS circuits are expected to supplant NMOS circuits in popularity by the end of the decade.



Ludwig Orth, vice president of ITT Europe and SEL's general manager of consumer products, displays one of the integrated chips that are used in ITT's digital television.

Bauds, Bits and Chips: Glossary of Basic Terms for a User's Technical Vocabulary

By Edward K. Gravelly Jr.

TO HUNDREDS OF thousands of users of personal computers, the technical vocabulary surrounding the machines is as familiar as a sportscaster's language is to a football fan.

But to those who are new to these machines, which many technology forecasters believe will someday be as common as telephones, the following glossary is meant as a help in the transition from novice to expert.

BAUD RATE — A standard measure, in bits per second, of the speed by which computers transfer data from one place to another.

BITS AND BYTES — The bit is the basic unit of information in a computer. Each number and letter that goes into a computer is translated into electronic impulses. Each impulse is usually represented on paper by a 1 or a 0 and is called a bit. Each combination of bits, representing a letter or a number, is called a byte. There are eight bits in a byte.

CHIPS — The building blocks of a computer. The brain of the computer is a chip called the microprocessor, or central processing unit (CPU). Almost all microcomputers have central processing units that work with information either 8 bits or 16 bits at a time.

Different CPUs make computers, like the Apple and the IBM Personal Computer, so different that they are called incompatible. That is, one cannot run the programs of the other.

The computer takes data or programs from certain chips but cannot put data into them. That is, the computer only reads the information in these chips. They are called read-only memory, or ROM, chips. Other chips store data and programs temporarily while the power is on. These make up what is called

the random access memory, or RAM.

COMPUTER — Technically speaking, the computer comprises only the CPU and the boards and chips connected to it. But when people speak of a computer, they usually mean to include the other components, or peripherals, like disk drives, a monitor (which looks like a small television screen), a keyboard and a printer. Thousands of microscopic electronic circuits, crowded into a space less than 1/4-inch square, are known as a microprocessor, which has made possible the microcomputer.

The home computer, is largely characterized by its price, less than \$800. Until recently, home computers were mostly used to play games.

Computers with additional internal memory and storage capacity are known as personal computers. They are more powerful than home

computers and are big enough to do word processing, some financial planning, other serious work — and to play games.

Business microcomputers, which generally have more memory and storage capacity, can use sophisticated software for financial analysis, data base management and communication with large, mainframe computers, the biggest computers made. Minicomputers, which are proportionally more powerful than microcomputers, can be used by many people at the same time.

DATA BASE MANAGEMENT — A data base management program enables a computer to store large amounts of information and then sort it in almost any manner. For example, a company's data base could give a list of customers by zip code, by credit line, alphabetically by name or by telephone number. The program takes care of

managing the storage and retrieval of the data.

DISK DRIVE — Every computer of any substantial worth has a device for storing information. The most commonly used device is called a disk drive, although some computers use tape recorders.

As the drive spins the disk, it can either take information from the disk or put information onto it. This is called reading and writing. The plastic disk, which is thin and flexible, is called a floppy disk. Disks not only store information that the computer produces, but they also store the instructions, called programs, or software, that the computer needs in order to function.

Some drives put information on both sides of a disk. These are called double-sided drives. Single-sided drives record on only one side. The density of a drive refers to the number of tracks of information encoded on a disk.

In addition to floppy disk drives, there are hard disk drives, which rapidly spin hard, metal disks that store vastly greater amounts of information than do floppy disks.

DUMB TERMINAL — The minimum equipment necessary to communicate with a computer. It consists of a monitor and a keyboard and will do little more than send and receive data.

HACKER — An expert computer enthusiast. Hackers are known for spending hours on end, by day and by night, with their computers.

K — The abbreviation for kilo,

usually referring to a measure of storage. One K actually equals 1,024, but it is usually rounded off to 1,000.

LANGUAGES — Computer languages vary in their complexity, starting with the native idiom of the CPU, which is machine language — the 1s and 0s of binary code.

Next comes assembly language, which is machine language represented in letters and numbers that can be more easily used by people.

Above these are "high-level" languages, like BASIC (Beginner's All-Purpose Symbolic Instruction Code), COBOL (Common Business-Oriented Language), and FORTRAN (Formula Translation system).

CBASIC is a version of BASIC that runs on the CP-M operating system. It is a structured language, often preferred by programmers working in BASIC.

MBASIC is a version of BASIC developed by the Microsoft Corp. It is easy for novices to use but lacks the structure of CBASIC.

MEMORY — Used to describe the internal working space of computers, their RAM and ROM. Small machines, like those used for games, store only about 8,000 (or 8K) bytes of information in their internal access memory.

MODEM — A device that converts electronic signals from the computer into sounds that can be carried over a telephone line and then converts the sounds back into electronic signals. The term is a

combination of two words: modulator and demodulator. An acoustic coupler is a modem into which a telephone can be placed.

NIBBLE — Half of a byte, a unit of no special importance except to a hacker.

OPERATING SYSTEM — The program that acts as the bureaucrat of the computer, coordinating the whole computer system, the CPU, disk drives, printer and other programs. The operating system gives the user control of his computer. It also is called a disk operating system, since it controls the flow of data between the CPU and the storage disks.

Two common operating systems are CP-M (control program for microcomputers) and MS-DOS (Microsoft disk operating system).

There are more programs written for CP-M than for any other operating system that runs on 8-bit machines.

PORTS — The channels through which computers send and receive data. They are either serial or parallel. That is, they send or receive data one bit at a time (serially) or several bits at the same time (in parallel). Telephone communication is done serially.

SMART TERMINAL — A computer terminal that can do more than simply send data to a computer and display data from a computer. Depending on how many chips are built into it, a smart terminal can edit and store tempo-

rarily up to several thousand words, produce graphics, and even change the color of the background on its monitor.

SOFTWARE — The instructions by which a computer operates, also known as programs. The information produced by the computer is generally called data. Software is the electronic instructions that enable the user to tell the computer what to do.

SPREAD SHEET — A program that sets up an electronic spread sheet in which the lines and columns are automatically calculated according to formulas chosen by the user. When one number is changed, the program will automatically change all the sums and multiples that are affected.

TAPE DRIVES — Some less expensive microcomputers use tape recorders instead of disk drives to store information and programs. Tape drives are slower, however, because they store data sequentially. It is time-consuming for the tape recorder to wind and rewind a tape, looking for information. And it is impossible for the computer to insert data among other data on a tape.

One recent development is the high-speed tape drive, which works on the same principle as a tape recorder but runs the recording tape across the recording head quickly. The purpose of the higher speed is to reduce the time needed to load and unload data.

Wordstar is the standard with which all other word-processing programs are compared. The program permits a user to create text and format it as desired. It is a flexible and broad program that offers options like automatic checking of spelling and allows for production of letter-quality form letters. Wordstar retails for a relatively hefty \$495. Confirmed believers say the cheaper imitations do not offer the depth this program does. Wordstar is not the simplest program to set up and use, in part because there is so much to it. Offered by MicroPro International, it is compatible with Apple, IBM and CPM systems.

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Software Programming Comes of Age

By Al Senia

SANTA MONICA, California — In the view of many industry observers, 1983 has been the year the software industry came of age in the United States.

Its growth has been dramatic with dozens of new programs being introduced weekly and new software stores opening their doors on the average of one a week. Mail-order discounters have sprouted in locales ranging from Maine to California, and their customer bases extend around the world.

The industry is expected to continue its robust expansion at least until 1986. Future Computing of Richardson, Texas, a computer marketing research firm, predicts that within three years 1,000 software retail stores will do business in the United States, and \$5 billion worth of software products will line their shelves.

Already, there are more than 2,000 different software packages, from a fly-catching frog (Frogger) to a sophisticated eight-module accounting package (Accounting Plus). Such diversity, though welcomed by the consumer, has created confusion in the business. Price-cutting, fueled by retail competition, clouds the picture further.

However, there are a growing number of "software stars" popular because of price, function, ease of use and other factors. A guide to the top 10 software programs follows:

• **Bank Street Writer**. A word-processing program developed by educators and learning specialists, Bank Street has been gaining acceptance from novices and experienced users. Manufactured by Broderbund, based in San Rafael, California, the program is relatively simple to use. Unlike many more complicated packages, Bank Street uses a self-prompting method: The instructions pop right onto the screen as the user sets up the program.

Price is another strong point. The package is listed at \$69.95, which places it at one-third or less of the cost of many competitors. It is finding wide use among professionals who need a solid word-processing program for business reports. But the price also makes it popular with college students and home computer users. It is compatible with Atari and Apple hardware.

• **Choplifter**. Another Broderbund creation, this arcade-style game has been near the top of the charts for months. Flashy, high-resolution graphics and simulated three-dimensional design add to the rather adventurous scenario. The player pilots a helicopter that has to rescue four groups of hostages from a foreign land. Tanks, air mines, jet fighters and other explosive paraphernalia are thrown up to sidetrack the rescue. If the player survives the first barrage, he or she is in for a mean surprise: It gets increasingly harder to fly back in and rescue each of the remaining groups. It costs about \$30.

• **dBase III**. A powerful data-base management system, it has found a niche with doctors, lawyers, accountants, stockbrokers and other professionals in business. Basically, the package allows the user to manage data from a computer by using simple commands closely resembling English rather than computerese. The program can add, delete, edit, display, print and manipulate information quickly. The secret is in the shortened processing time: dBASE uses its own development language to expedite commands.

Data bases can be sorted, edited and displayed directly from the computer keyboard. The system also allows for data to be formatted directly into reports. An Ashton-Tate product that has gained 150,000 users worldwide at last count. Suggested retail price is \$700. It is compatible with IBM and CPM systems.

• **Frogger**. Another arcade game, it is sweeping through home computer systems and is played in offices on the sly. A rather endearing, looking frog is maneuvered, at great peril, through a variety of obstacles, including a busy freeway. If the user can successfully help the hapless creature catch flies, a reward (for the frog at least) is in the offing. It is manufactured by Sierra On-Line and is compatible with Apple, Atari, Commodore and IBM. The cost is about \$30.

• **Home Accountant**. A financial management program for home and small business, it is taking what is known as the "home productivity" end of the software market by storm. Its primary appeal is that it serves a variety of needs for not much money. The package can balance a checkbook, manage a budget, print checks, monitor personal net worth and be used as a general ledger. The program also maintains a history of all financial transactions for the user. Produced by Continental Software of Los Angeles, it retails for \$150 but usually is found for less. It is compatible with virtually all popular computer hardware including Commodore, IBM, Kaypro, TRS-80, Atari, Apple and Texas Instruments.

• **MasterType**. This is a new learning tool that is one of the first to integrate classroom educational software and arcade games. It teaches the user how to type through 18 lessons of gradually increasing difficulty. A colorful screen, explosive graphics and a game setting are successfully presented in an appealing package. A wizard shoots laser beams to destroy missiles, meteors and satellites launched by enemy words from the planet Lexicon. To destroy the space objects a player has to keep his eyes off the keyboard and on the screen. Typing the word correctly and pressing the space bar activates a devastating laser bolt that zaps the word's missile. It is available through Lightning Software of Palo Alto, California and is priced at \$40. It is compatible with Apple, Atari, Commodore and IBM.

• **1-2-3**. The brainchild of Lotus Development Corp. of Cambridge, Massachusetts, 1-2-3 is an all-in-one program that allows microcomputers to manipulate columns and rows of numbers and to file and sort information. Introduced last year, it has become the top program in business for personal computers, and sales have totaled more than \$12 million so far this year. Essentially, it is a spreadsheet program, popular with executives and corporations, that allows "windows" on the computer screen to enter text or to display graphs of information. The program has spawned more than three dozen imitations. It sells at retail for \$495 and is for use with IBM.

• **PFS:FILE**. The handy program allows for easy storage, organization and eventual retrieval of all sorts of information. Home computer users use it to keep track of record collections, recipes and so forth. Sales people can use it to keep track of their accounts. The corporate manager can use it to keep track of personnel or inventory. The program can search for data or text in combinations selected by the user. Software Publishing of Mountain View, California markets PFS:FILE and has developed compatible programs such as PFS:WRITE (a word-processing package) and PFS:REPORT (an information-management system) for use with the earlier product. It is compatible with Apple, Commodore and IBM and costs approximately \$150.

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COMMUNICATIONS TECHNOLOGY

IBM: New Aggressiveness Is Working

By David Moschella
FRAMINGHAM, Massachusetts — International Business Machines Corp. has been the undisputed leader of the worldwide computer industry for more than 20 years. Yet, despite the fact that as recently as three years ago IBM's data-processing revenues were greater than its 15 largest competitors combined, observers were seriously questioning the company's long-term prospects.

Weighed down throughout the 1970s by public and private antitrust suits, IBM was slow to take advantage of major new opportunities in minicomputers, word processing and computer services. While companies such as Digital Equipment Corp., Wang Laboratories Inc., Automatic Data Processing and Apple Computer Inc. prospered, IBM's share of the overall market steadily fell.

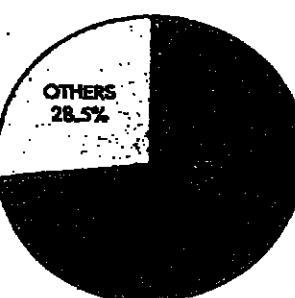
Today, there are days when it seems like IBM is the only thing that stands between U.S. technological leadership and a Japanese takeover of the worldwide computer industry. IBM's technology has become first rate, its manufacturing prowess unmatched and its growth and earnings are the envy of the industry. IBM still controls about 30 percent of the \$100-billion worldwide computer business, a share that has stabilized and that in 1982 rose slightly.

The company does not hide its new aggressiveness. It will pursue any and all markets, and it plans to take full advantage of the many opportunities of the upcoming information age. Telecommunications, videotext, robots and consumer products are just the most visible signs of what is clearly a "new IBM."

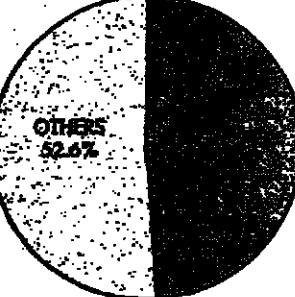
The roots of the turnaround reach back to 1978, when IBM embarked upon an aggressive five-year building, during which about \$11 billion was spent on research and development and \$15 billion was invested in new production facilities. The purpose of this unprecedented expansion was to prepare for the merging of data processing, office automation and communication services and the necessary production of low-cost, high-volume products to be distributed on a worldwide basis.

This policy has clearly begun to pay off. From \$4-million mainframes to \$3,000 Personal Computers, IBM is flooding the market with aggressively priced hardware. Last week the company introduced two advanced versions of its Personal Computer, the 3270-PC and the XT-370. It also presented the

1982 Worldwide Mainframe Computer Shipments



1982 Worldwide Computer Shipments



Source: International Data Corporation

8150 as the top model in the 8100 series of mainframe computers. In addition, the company introduced software that allows letters and other documents to be exchanged through the 8100, 5520 and Displaywriter office systems.

To keep in touch with rapidly changing markets, the company has reorganized itself, creating independent business units free of the miles of corporate red tape that had plagued decision-making in the past. With its lean, fast-moving image, IBM once again is seen as a growth stock.

But from IBM's perspective, the challenges of the next five years are at least as great as those of the past. It is generally believed that IBM's internal business plan calls for it to become a \$100-billion company by 1990, implying an annual growth rate of 14 percent. To put that growth in perspective, consider that to reach its goals, IBM must triple its sales in a market where prices are falling. In effect, two new companies the size of 1982's \$34-billion IBM must be built in just eight years. It took 71 years to produce the IBM that exists today.

IBM cannot meet its growth targets by merely growing with the

markets it currently serves. New ventures are a must, and although areas such as robotics, artificial intelligence and videotext systems will some day become major markets for IBM, for the rest of this decade telecommunications, personal computers and office automation represent the most attractive opportunities.

Telecommunications services are becoming increasingly computerized. Yet, IBM's share of the roughly \$200-billion worldwide telecommunications business is virtually zero. But as computer and communication services steadily overlap, IBM will increasingly compete with the likes of AT&T in the United States, Nippon Telephone and Telegraph in Japan and their counterparts in Europe.

This competition has already begun. In the United States, IBM has a majority stake in Satellite Business Systems (SBS), which provides sophisticated voice, data and video transmission services to large businesses. SBS has recently begun to offer residential long-distance voice services as well. About 18 months ago, IBM re-entered the U.S. computer-services business by establishing its Information Network to provide remote data-processing and transmission services.

In June, IBM bought a 15-percent stake in Rolm, the leading U.S. manufacturer of private branch exchanges, known as PBXs. In addition to handling telephone traffic, PBXs will control many data transmission tasks both within an office and to the outside world. Rumors persist that IBM will market the Rolm PBX to the IBM customer base outside the United States, a potentially powerful combination.

In Germany, IBM is the primary contractor for that nation's videotext system, known as Bildschirmtext. Although, to IBM's embarrassment, technical difficulties have delayed the project, it is expected to become a major revenue producer as well as a political and marketing coup. In Japan, IBM has asked for permission to establish a public data network and is working with Mitsubishi to explore business and residential telecommunications markets, including cable TV.

Personal computers are one of the key forces behind the widespread interest in telecommunications. As computing devices proliferate, the demand for communications increases sharply since information gets shared and services such as electronic mail become more feasible. By 1990, International Data estimates that there

will be approximately one computer workstation for each U.S. white-collar worker. By then the data communications market will have exploded.

In about 18 months, IBM went from nowhere to become the leading supplier of personal computers, and it is now the target of most independent application software and disk and printer development. IBM admits that it was stunned by the success of its own Personal Computer, but its chief scientist, Louis Branscomb, said that the "future is centered on powerful work stations."

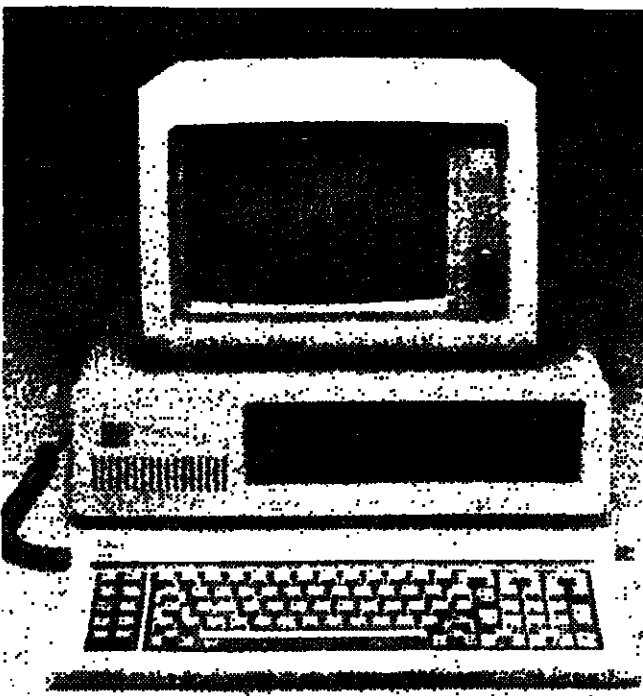
Although primarily it serves the business market today, IBM expects to sell similar personal machines to the home. Best estimates are that IBM will build about 700,000 Personal Computers this year. Production will increase significantly in 1984, as a new factory in Scotland gets into full-scale production.

IBM realizes that given the rapid diversification of the information-processing industry, even a company its size cannot be all things to all people. In January, 1982, the U.S. government dropped its 13-year antitrust suit against IBM, saying it was "without merit." Since then IBM has aggressively and carefully built ties with major firms around the world.

In the United States, in addition to the Rolm interest, IBM has bought a 12-percent stake in Intel, a leading semiconductor firm that manufactures the microprocessors in IBM's Personal Computer and Displaywriter word processor. It also set up IBM Credit Corp. and has an equipment-financing venture with Merrill Lynch. Industry observers expect more moves along these lines.

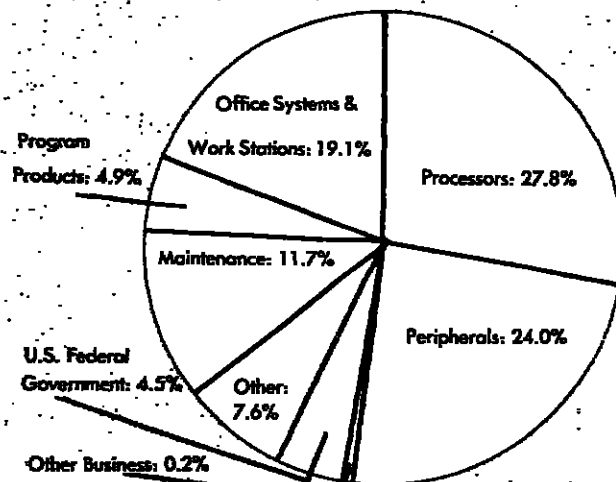
Internationally, IBM has been even more aggressive. The company has made major agreements with Matsushita, Mitsubishi and NTT, as well as with smaller firms. IBM's expanded use of outside suppliers is best shown by its personal computer, where the only thing IBM actually builds is the keyboard; the other components come from U.S. and Japanese suppliers. IBM's Personal Computer manufacturing efforts are primarily concerned with testing and assembly.

Yet, although IBM is being more cooperative with outside suppliers, application software houses and those companies that want to make their systems communicate with IBM products, it has also become much tougher in protecting its assets. Since the victory in the anti-



IBM's Personal Computer.

IBM 1982 U.S. Revenues By Product Category



Total: \$19,028 million

Source: IBM 1982 Annual Report

trust suit, IBM's lawyers have suddenly taken the offensive.

In June 1982, IBM accused both Hitachi and Mitsubishi of industrial espionage, a charge to which Hitachi has already pleaded guilty. IBM has also sued NCR Comten, maker of IBM compatible communications processors, and Cybernet, a manufacturer of advanced magnetic storage components. For almost 10 years, the European

Commission has been mulling antitrust charges similar to those already dismissed in the United States, and it appears that IBM will get through this final challenge equally unscathed.

The writer is a research analyst at International Data Corporation, a Boston-based market research and consulting firm in the information processing industry.

Software Makers Act to Curb Piracy

SANTA MONICA, California — Like many other executives in California's Silicon Valley near San Francisco, the heart of the state's computer industry, Jon Loveless has written more than a few commercially successful computer games for the software trade.

As the marketing vice president of Synapse, a software manufacturer, he has reviewed scores of software programs.

Still, when an acquaintance recently offered him a bootleg version of a popular computer game, Mr. Loveless was taken aback. The product was one that he had written just a few months before.

"I've been asked on a couple of occasions if I'd like a copy of my own game," Mr. Loveless lamented. "There are some user groups that openly trade and give out for free software designed for sale in which there is still a proprietary interest."

His problem is not unique. The billion-dollar software industry is under attack by sophisticated bootleggers or pirates who easily duplicate popular and expensive program packages. They obtain the material through computer user associations, software rental stores and "electronic billboards" that spring up among groups of computer buffs quickly and which can transfer software over the telephone.

The dollar loss probably runs into the tens of millions annually although precise figures aren't available. While many in the industry may differ about the extent of the problem, all sides agree it is growing worse and is nearly impossible to stamp out. Much of the piracy is being committed by individuals who borrow a program from a friend and quickly and easily duplicate it on a cassette or a diskette for their own use. In that respect they resemble people who tape a record album from the radio for their personal use.

However, increasingly groups of pirates are making several copies of more expensive programs and retailing them for prices well below those found even in discount software shops.

"It's akin to the problem of shoplifting," says Chris Morgan, vice president of communications for Lotus Development Co., manufacturers of 1-2-3, the most popular business program in the United States for personal computers. "We take it very seriously. But just like no store can totally eliminate shop-

lifting, the best we can do is to try to keep the problem under control as much as possible."

In the past few months, software manufacturers have acted in a variety of ways to stymie software thieves.

Increased security. It usually takes about six weeks to develop popular recreational games. Some companies, like Synapse, now spend as much as one-third of that development period on security and codes that are printed on the software packages to slow down bootleggers.

Legal remedies. Micropro International, a major San Rafael, California, software manufacturer, filed a piracy suit against United Computer Corp., another giant California firm. United Computer rents software programs; the suit claims Micropro has suffered financial losses as a result. A second software firm, Peachtree Software Inc., of Atlanta, filed a similar suit in late September against United Computer that seeks the return of Peachtree's software products and financial damages.

Some industry officials think the suits eventually will be settled amicably. But in the interim some retail chains are taking a less aggressive approach to the rental trade. As both sides prepare their legal battles, it appears likely the legal action will put in the spotlight the role of the rental business on piracy.

Technological solutions. Several firms are developing new devices they claim will frustrate pirates. One of the newest and most successful is the Prolok system developed by Vault Corp., a small California firm. Vault attaches a "fingerprint" on a floppy disk, the device on which software manufacturers record their programs. When it is inserted in a computer disk drive, it unlocks the program. If the drive is not read, the program will not run.

The Arlington, Virginia-based Association of Data Processing Service Organizations, or ADAPSO, established this summer an information clearinghouse to gather data on antipiracy devices.

"It's our attempt to take whatever information people are willing to submit on the perfect solution to the problem and turn it over to the people who have signed up to receive it," explains David Wormser, ADAPSO's assistant general counsel. "We're acting as a conduit. It's an opportunity to give the people

(Continued on Following Page)



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COMMUNICATIONS TECHNOLOGY

Industry Takes Steps to Curb Piracy of Products and Ideas

(Continued From Preceding Page)

who are looking for solutions out there an audience they might not otherwise have reached.

The clearinghouse activity aptly illustrates how widespread concern in the industry has become. Rick Magnuson, a sales director for Software Publishing Corp. in Mountain View, California, leads ADAPSO's software protection committee. To date, he says 160 firms have signed up for information on solutions to piracy.

Mr. Magnuson and others said the Vault Prolog system thus far has the best chance of stopping pirates. First, it offers a mixture of both hardware and software protection that is more difficult to crack: it involves both the "print" on the software package and action by the microcomputer. Also, it is immune to copiers: Although the program's application instructions can be duplicated without the cod-

ed print, the program will not run on a computer without it. Finally, it is cheap. Estimates are that it will add only one dollar to the cost of a software package. (Most recreational software, the prime targets of the pirates, costs between \$25 and \$50.)

Vault received a big boost in early October when a major software producer, Ashton-Tate, purchased approximately 20 percent of the company. Kragg Broby, the firm's president, says Ashton-Tate's involvement with Vault will not hinder availability to other software manufacturers.

He also plans to produce a series of more specialized products based on the Prolog system. "We're planning items like a disk for data file security and a demonstration disk so that software people could send out copies for manufacturers to look at and they couldn't be duplicated. We see ourselves as being in

the communications security business," he said.

Manufacturers also are exploring potential legislative remedies to help control the software problem. In this they appear to be taking their cue from the recording and videocassette industries, both of which have been battered by illegal duplicating and have pressed Congress, so far with minimal success, for relief. One proposed remedy, for example, gave the copyrighted owner of a record the power to license rentals. But the issue is more complex for software because it still is unclear from a legal perspective if software enjoys copyright protection.

"A software protection proposal has been worked on for some time and it is still under review," said Mr. Wormser of ADAPSO. It probably will not be introduced in the immediate future.

While the software piracy problem and most of the proposed solutions appear centered at present in the United States, many executives believe the industry will turn its attention to Europe soon.

"The problem is even more widespread overseas because American software companies have not done a good job in educating Europeans to the fact that copying software is not legal," said Mr. Magnuson. Mr. Loveless from Syntex added, "We sell in both Germany and England, and Germany is one of the most sophisticated from a piracy standpoint."

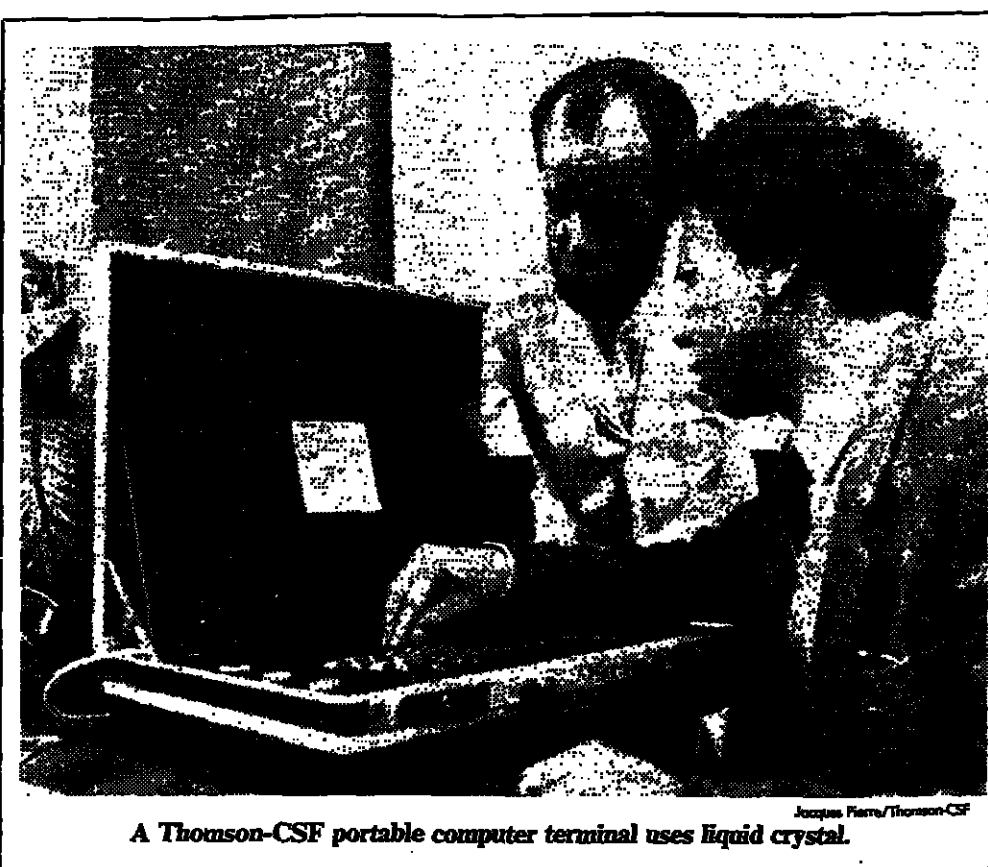
"From a percentage standpoint, the piracy problem there is probably worse than it is over here."

All agree the bootleg industry is growing.

"It spreads like wild fire," added Mr. Loveless. "Once a copy of a new program is made, other copies are duplicated from it very quickly."

He pointed to one recreational program, a software package entitled Shamus, as an example. Synapse has sold more than 60,000 copies of the game at approximately \$35 each. Based on calls for support by users, he estimated 200,000 illegal copies are in circulation. (Other manufacturers also contend there are between three and four bootleg versions of other popular software for every one produced in circulation.) The estimated dollar loss from just one of the 30 entertainment programs produced by this one medium-size software firm is \$7 million.

—AL SENIA



A Thomson-CSF portable computer terminal uses liquid crystal.

Investors Are Skittish; Stocks Slide

(Continued From Page 10)

which manufactures electronics for IBM's popular Personal Computer, and Tandon Corp., a leading manufacturer of disk drives used in the manufacturing of home computers, which recently secured a \$310-million contract, reportedly with IBM.

Still, there have been a few consistent computer stocks. High among the recommended buys of many Wall Street investment advisers is IBM. Seemingly untouched by the growing price wars, IBM is trading near its year's high of \$134. The Armonk, New York,

manufacturer of office computer technology, continues to step up production of its personal computer but is unable to meet demand. It also has on line a lower-priced home version of the personal version, nicknamed the Ps/2, which will retail at about \$1,000.

"IBM has a product in every inch of the computer market," Mr. DeVoe said. "Almost everybody in the computer business will have to go ahead with IBM regardless of what they are selling."

After IBM, the company least affected by the current industry volatility is Commodore, even

though the stock is trading at \$44 a share, compared with its year's high of 60%, analysts said. Commodore, the leader of home computers selling for less than \$500, had sales gains of 113 percent in 1983 and an after-tax profit increase of 93 percent.

Finally, there is Tandy Corp., maker of the popular TRS-80 personal computer. A strongly recommended company, Tandy not only sells its own computers but also sells its competitors' products in the 8,000 Radio Shack stores that it owns. The stock is selling at 11.4 times earnings.

Prediction for Compact Computers: One in Every Briefcase

(Continued From Page 12)

for a variety of purposes. Users can send and receive mail and even receive the latest stock market quotes through their computer.

News companies in the United States and Canada have started buying portable computers for their reporters to use as electronic typewriters. Writers benefit from the small size and the fact that many of them, such as those produced by Tandy, Olivetti, Epson

and NEC, run on batteries as well as electricity. The main advantage, however, is that portables can be coupled to a telephone to transmit information to another computer at a rate of 300 words a minute compared with 66 words a minute for a telex.

The Wall Street Journal uses Portabubble 81 portable terminals, manufactured by Teleram, and is buying the Tandy TRS-80 Model 100, which is smaller, lighter and fits in a briefcase. The New York Times has 83 Portabubble 81s, two

Texas Instruments 765s and recently bought six Tandy TRS-80 Model 100s. Howard Angione, technology editor of The Times, said, "We are going slowly on purchasing any others."

The Associated Press recently bought about 100 of the Tandy TRS-80 Model 100. The Washington Post has bought 25 of them and is planning to buy more. Don Till, director of communications at The Washington Post, said, "Any reporter who travels could benefit from it."

Phone, Computer Grow More Alike

By Paul Taylor

AUSTIN, Texas — Any computer company that owns a chain of retail outlets that cling to their relatively low-tech name of Radio Shack has clearly cast its lot with mass consumer products.

So it is hardly surprising that Tandy Corp., which led the way in popularizing low-cost personal computers, is trying to do the same for a range of new products that marry the merging technologies of the computer and the telephone.

This spring Tandy introduced a \$799 portable computer that is small enough to use on an airplane seatback tray and versatile enough to plug into a standard telephone jack — and then go ahead and dial a preprogrammed number on its own.

It has also begun selling a low-cost (\$99) pocket pager that beeps phone messages. It is also offering a variety of telephone enhancements designed to bring the features one associates with office phones — such as call holding and call forwarding — into the home.

"I'm not sure we won't see the day too many years from now when it is going to be hard to tell your telephone from your computer," said John V. Roach, chairman and chief executive officer of the Fort Worth, Texas-based company.

To do its part to speed the arrival of that day, Tandy on Nov. 1 will open 25 new telephone centers around the United States that will offer the latest in computerized communications gadgetry to a market of home consumers and small businesses.

"Our telephone business has been growing at a very nice rate," Mr. Roach said. "Better than the average of the rest of the company. We did more than \$200 million in phone sales last year, which made us the largest independent telephone retailer outside of AT&T."

American Telephone & Telegraph Co., in its new condition, will also move aggressively into the marketing of consumer products that bring the computer into communications. But at the moment, Tandy has one advantage that even the Bell system cannot match — a worldwide retail distribution network.

"What makes us truly unique in the computer field is that we are the only company with our own distribution service and support network," Mr. Roach said. There are more than 8,700 Radio Shack stores worldwide, about 1,200 of

which are computer centers. If the pilot program involving the 25 telephone stores is a success, Tandy will rapidly increase their number.

The possibilities for new products that combined computers and communications are endless. Tandy executives foresee the day before long when most standard kitchen stoves will have a microprocessor that will allow the on-the-go chef to dial up cooking instructions from afar.

Tandy's portable, TRS-80 Model 100, reportedly has caused concern among some out of fear that they might cause interference with an airplane's on-board navigational equipment. But Tandy spokesmen said tests show their computers fall well within acceptable radiation levels for use on airlines. "I have used mine on about 20 different planes, and I always make a point of checking with the pilot," a Tandy executive, Ed Judge, said. "There's never been a problem."

Tandy is counting on a boom from sales of its portable computer, and it is similarly bullish about the prospects for its pocket pager and other telephone-oriented gadgetry. "Over the long term, the residential customer is going to want a telephone system that has the same features he has become accustomed to in the workplace," Mr. Roach said.

Operating on the theory, Tandy is test-marketing a \$999 computer that can link ordinary residential phones with a sophisticated switching system. The \$99 pocket pager allows a user, once he hears a beep, to call a radio paging service that will deliver a message for as little as \$4 per month and 26 cents a call. Other pagers — more expensive and not marketed by Tandy — have a feature that actually displays the caller's telephone number right on the pager.

Tandy's move into communications comes at an opportune moment: Like all makes of home computers, it suffered lagging profits in 1982 and early 1983 as a result of the crowded market and competition. In the last two years, Tandy has also dropped from second to fifth in volume of sales in the home computer market.

But the company's strength, in addition to the retail distribution network, has always been the breadth of its product line. "We have 10 to 20 percent of the market of virtually every computer product we sell," Mr. Roach said.

BUILDING THE WORLD'S MIGHTIEST MACHINE.

It's by far the biggest and most complex artifact man ever created.

It's taken more than a hundred years to bring it to its present stage of development. But it's only now that the full potential of the worldwide telecommunications network is becoming apparent.

Slowly, almost imperceptibly to its users, it's changing into a single, global, digital computer. Transmuting your voice across the hall or across the ocean is just the beginning of what it can do for you.

Ericsson is a major force in this development. In 1977, we introduced a totally new way of thinking about telecommunications systems. We replaced the

prevailing hardware-based approach, dating from telecommunications' infancy, with software-based "functional modularity."

Why should you know about all this?

Simply because the principles Ericsson applies to the design of telecommunications systems for entire countries are just as valid for designing an information system for your company.

They offer exactly the same advantages they're giving to a growing number of the world's telephone companies: cost-effectiveness, flexibility and the ability to absorb new technology.

They let you build bridges between pre-

viously isolated islands of local computers and office automation systems. And make your whole corporate information system future-proof.

We have all the software you need. And all the hardware, including the key component: a digital PBX that handles voice, text, data and pictures simultaneously. It comes in modules that can be combined to serve any number of extensions — from 100 to more than 10,000.

No matter where in the world these extensions happen to be, they can have full access to all the facilities of your company's information system.

Data processing and office automation by

themselves are no longer enough to give your company the competitive edge it needs. It takes telecommunications to realize their full potential.

Ericsson can put the keys to all three disciplines in your hands.

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CURRENT

Exchange rates for October 25, 1983

Country	Unit	Rate
Argentina	1000 pesos	1.00
Australia	100 dollars	1.00
Belgium	100 francs	1.00
Canada	100 dollars	1.00
Denmark	100 kroner	1.00
France	100 francs	1.00
Germany	100 marks	1.00
Greece	100 drachmas	1.00
India	100 rupees	1.00
Italy	100 lire	1.00
Japan	100 yen	1.00
Netherlands	100 guilders	1.00
Portugal	100 escudos	1.00
Spain	100 pesetas	1.00
Sweden	100 kronor	1.00
Switzerland	100 francs	1.00
Taiwan	100 dollars	1.00
UK	100 pounds	1.00
USA	100 dollars	1.00

INTEREST

Interest rates for October 25, 1983

Country	Rate
Argentina	10.00%
Australia	10.00%
Belgium	10.00%
Canada	10.00%
Denmark	10.00%
France	10.00%
Germany	10.00%
Greece	10.00%
India	10.00%
Italy	10.00%
Japan	10.00%
Netherlands	10.00%
Portugal	10.00%
Spain	10.00%
Sweden	10.00%
Switzerland	10.00%
Taiwan	10.00%
UK	10.00%
USA	10.00%

Money Rates

Money rates for October 25, 1983

Country	Rate
Argentina	10.00%
Australia	10.00%
Belgium	10.00%
Canada	10.00%
Denmark	10.00%
France	10.00%
Germany	10.00%
Greece	10.00%
India	10.00%
Italy	10.00%
Japan	10.00%
Netherlands	10.00%
Portugal	10.00%
Spain	10.00%
Sweden	10.00%
Switzerland	10.00%
Taiwan	10.00%
UK	10.00%
USA	10.00%

Currency Deposits

Currency deposits for October 25, 1983

Country	Rate
Argentina	10.00%
Australia	10.00%
Belgium	10.00%
Canada	10.00%
Denmark	10.00%
France	10.00%
Germany	10.00%
Greece	10.00%
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Money Rates

Money rates for October 25, 1983

Country	Rate
Argentina	10.00%
Australia	10.00%
Belgium	10.00%
Canada	10.00%
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Sweden	10.00%
Switzerland	10.00%
Taiwan	10.00%
UK	10.00%
USA	10.00%

Monday's
NYSE
ClosingTables include the nationwide prices
Up to the closing on Wall Street

12 Month High Low Stock Div. Yld. PE 100 High Low Close

(Continued from Page 8)

12 Month	High	Low	Stock	Div.	Yld.	PE	100 High	Low	Close
27 1/2	18	17 1/2	30	1.22	22	15	19 1/2	18 1/2	18 1/2
27 1/2	18	17 1/2	30	1.22	22	15	19 1/2	18 1/2	18 1/2
27 1/2	18	17 1/2	30	1.22	22	15	19 1/2	18 1/2	18 1/2
27 1/2	18	17 1/2	30	1.22	22	15	19 1/2	18 1/2	18 1/2
27 1/2	18	17 1/2	30	1.22	22	15	19 1/2	18 1/2	18 1/2
27 1/2	18	17 1/2	30	1.22	22	15	19 1/2	18 1/2	18 1/2
27 1/2	18	17 1/2	30	1.22	22	15	19 1/2	18 1/2	18 1/2
27 1/2	18	17 1/2	30	1.22	22	15	19 1/2	18 1/2	18 1/2
27 1/2	18	17 1/2	30	1.22	22	15	19 1/2	18 1/2	18 1/2
27 1/2	18	17 1/2	30	1.22	22	15	19 1/2	18 1/2	18 1/2

Sales figures are unofficial. Yearly highs and lows reflect the previous 52 weeks plus the current week, but not the latest trading day. Where a split or stock dividend amounting to 25 percent or more has been noted, the year's high-low range and dividend are shown for the new stock unit. Unless otherwise noted, rates of dividends are annual disbursements based on the latest declaration.

a—dividend as a percent of price.
b—annual rate of dividend plus stock dividend.
c—dividend in cash.
d—dividend in stock.
e—dividend in cash and stock.
f—dividend in stock and stock dividend.
g—dividend in cash and stock dividend.
h—dividend in stock and stock dividend.
i—dividend in cash and stock dividend.
j—dividend in cash and stock dividend.
k—dividend in cash and stock dividend.
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r—dividend in cash and stock dividend.
s—dividend in cash and stock dividend.
t—dividend in cash and stock dividend.
u—dividend in cash and stock dividend.
v—dividend in cash and stock dividend.
w—dividend in cash and stock dividend.
x—dividend in cash and stock dividend.
y—dividend in cash and stock dividend.
z—dividend in cash and stock dividend.

Over-the-Counter

NASDAQ National Market Prices

Oct. 24

Sales 100s High Low 3pm Net

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Sales 100s High Low 3pm Net

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Grains

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U.S. Future Prices

Oct. 24

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Financial

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Stock Indexes

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BUSINESS BRIEFS

Sears's Profit Rose 73% in 3d Period And 9-Month Earnings Climbed 89%

CHICAGO (AP)—Citing a marked improvement in retail sales, Sears, Roebuck & Co. said Monday that its third-quarter profit rose 73 percent to a record from a year earlier, and that earnings for the first nine months soared 89 percent, to another record.

The retailer, the largest in the United States, said it earned \$288.8 million in the third quarter, or 81 cents a share, up from \$166.7 million, or 48 cents a share, a year earlier. Revenue rose to \$8.9 billion from \$7.51 billion.

For the nine months, Sears earned \$795.5 million, or \$2.15 a share, up from \$401.8 million, or \$1.15 a share. Revenue climbed to \$25.1 billion from \$21.2 billion.

Edward R. Telling, chairman and chief executive officer, said strong improvement by the company's merchandise, insurance, real estate and financial-services groups contributed to the results.

Polish Debt Accord Ready for Signing

FRANKFURT (AP)—Polish financial officials and Western bankers will gather in Luxembourg Nov. 3 to sign a formal agreement rescheduling Warsaw's 1983 commercial debt, European banking sources said Monday.

Bankers involved in the Polish debt talks ruled out any last-minute snags and confidently disclosed plans to get 1984 debt-deferral talks under way as soon as this year's agreement is signed. Terms of the accord covering \$2.6 billion in interest and principal mirror preliminary conditions initiated by Western bankers and Polish officials in Vienna in August.

One banker close to the negotiations said Poland's 500 creditor banks have this week to comment on the agreement. "But we don't expect any problems," he added. As in 1981 and 1982, banks were forced to grant the Poles concessions this year, including a longer deferral period and a larger percentage of interest to be recycled into new trade credits.

OPEC Seen Exceeding Output Ceiling

LONDON (Reuters)—OPEC output so far in the fourth quarter may be running as high as 18.6 million or 18.7 million barrels a day, according to estimates prepared for a minister on the market monitoring committee of the Organization of Petroleum Exporting Countries, the Petroleum Intelligence Weekly said Monday.

But the publication said other late figures run closer to 18.4 million barrels a day. OPEC's official production ceiling is 17.5 million barrels a day.

Committee working papers show that more than half of OPEC's 13 members are significantly exceeding their quotas, it said, adding that OPEC oil ministers are increasingly aware that overproduction not only may lead to a dangerous surplus in 1984, but also would diminish buyers' perceptions that OPEC was determined to act as a cohesive group.

Chrysler, UAW Sign \$1-Billion Pact

DETROIT (UPI)—The United Auto Workers union and Chrysler Corp. Monday signed a two-year \$1-billion contract that the union's president, Owen Bieber, called another symbol of the "renaissance of Chrysler."

Bargainers for the union and the automaker signed the contract, which had been negotiated and ratified more than a month ago. The pact gives U.S. workers an immediate pay raise and eventual wage and benefit parity with their counterparts at General Motors Corp. and Ford Motor Co.

Recovery Seen Lasting Through '85

NEW YORK (AP)—A panel of 35 corporate financial officers expects the U.S. recovery to continue strongly in election-year 1984 and through 1985 as well, a business research group said.

The panel of senior executives, surveyed twice a year by the Conference Board, said on Sunday that the gross national product, after adjusting for inflation, would average 4.8 percent growth in the fourth quarter this year, 5 percent in 1984 and 4 percent in 1985. GNP is a nation's total output of goods and services.

Israeli Stock Market Resumes Trading

TEL AVIV (AP)—Bank shares were down 17 percent Monday when the Israeli stock market resumed full trading for the first time in two weeks.

The drop meant that the shares had lost 40 percent of their market value since the market was hit by panic selling and closed Oct. 9 to avert a collapse amid a national economic crisis.

The decline in the shares' value was announced on the stock exchange floor at the start of trading after major banks spent the night compiling sell orders and set the new stock prices.

Shipowners Are Buying Despite Glut

By Paulette Roberge
International Herald Tribune

LONDON — Despite the overcapacity in the shipping industry, shipowners have been unable to resist the current low prices for new ships.

"I always say that there's no logic in buying what you don't need just because it's cheap," said Jim Davis, chairman of the International Maritime Industries Forum, which held its annual meeting in London last week and has a membership of 87 shipowning, shipbuilding, oil and banking companies. "But," Mr. Davis added, "companies continue buying ships."

The excess tonnage in the shipping industry is seen partly as a result of low-cost credit advanced to shipowners by banks and the very low rates for new ships offered by shipyards desperate to survive in a shrinking market. The latter are partly kept alive by subsidies from governments anxious to avert job losses and to compete with shipbuilding now concentrated in the Far East.

In the past six months alone, shipowning companies, unable to resist the low rates for new ships, have ordered 243 bulk carriers. And this is in spite of an annual decline of 4 percent in total seaborne trade from 1979 to 1982.

While owners seem to expect that the worst of the slump is now behind them, and that trading conditions can only improve, they seem incapable of exercising any restraint when it comes to ordering new ships, said H. Rootel of Nedlloyd Groep of the Netherlands.

T. Jon Parker, of Harland & Wolff Ltd., a British shipbuilder, went further, in saying that no case can be made for any expansion in shipbuilding capacity in the 1980s. But, Hong In-Kie, president of Daewoo Shipbuilding & Heavy Machinery, one of South Korea's biggest shipbuilding groups, said

"Just when things are starting to look up, it is the bulk shipping industry itself which is ruining any prospect of a better market by flooding it with new tonnage, which, however efficient or economical on fuel, cannot hope to trade profitably until there is worthwhile improvement in rates."

Mr. Rootel said.

"By worthwhile, I mean a sustained rise which would restore spot rates to at least the level at which it is possible to cover all costs and produce a trading surplus."

Mr. Davis said in an interview that the current slump is forcing many shipowning companies to shrink, but the industry will not turn around unless large-scale restraint is practiced soon. The meeting was a successful one, he said, as everyone acknowledged the need for restraint.

"I'm enormously encouraged that everyone is on the same wavelength — everyone knows that the problem is very deep and very chronic," Mr. Davis said.

The forum believes that it is governments that hold the key to the problem, as they encourage the building of speculative vessels through subsidy, Mr. Davis said. As long as this type of building continues, "there can be no end to the plight of the world maritime industries," he said.

The South Koreans have said repeatedly that their quarrel is not with Western Europe but with Japan. This, said Mr. Davis, is like saying that no one in a swimming pool will feel the ripples of two people fighting in the corner.

The South Koreans, according to Mr. Davis, are expanding their shipbuilding industry by offering ships below cost. This, Mr. Davis said, is "less than helpful, and, indeed, madness."

He said that the forum fears that Western European governments would retaliate against South Korea by means of intense protectionism.

Trans World Plans to Spin Off Its Airline Unit

(Continued from Page 17)

ing airline likely to concentrate on its money-making international routes and cut back its domestic service and costs.

For the third quarter, the airline said it had an overall after-tax profit of \$75.5 million, up from a \$64.9 million profit a year earlier.

For the first nine months, the airline had a loss of \$33.4 million, wider than the deficit of \$19.8 million a year earlier.

In addition to TWA, Trans World operates Cantones, a food service; Spartan Food Systems Inc., which operates fast-food services and Hardee's franchise restaurants; Hilton International, operator of 89 hotels in 43 countries and expanding in the United States under the name Vista International; and Century 21, one of the largest real estate franchises.

All of the non-airline subsidiaries have been profitable while the airline was losing money.

Overall, the corporation said it earned \$88.3 million in the quarter. For the first nine months, Trans World said earnings totaled \$13.6 million, down 48 percent from \$26.2 million, "reflecting decreases from airline and hotel performance."

Gold Options (prices in \$/oz.)

Price	Nov.	Feb.	May.
300	10.50-10.50	11.00-11.00	11.50-11.50
400	200-200	7.00-7.00	7.00-7.00
500	—	1.00-1.00	1.00-1.00
600	—	1.00-1.00	1.00-1.00

Gold: 367.50-368.50

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Large Firms Focus on Micro Software

(Continued from Page 17)

scrambling to transform themselves into more powerful, professionally run companies to grid for the challenge. It is clear that tomorrow's software programmers will have to have a lot more than just their dreams; they will also need plenty of marketing muscle and mountains of money to elbow their way into the fray.

"Lotus was the start of the big time in the micro-software business," said Esther Dyson, publisher of Release 1.0, an industry newsletter. "Things will never be the same again." This assessment was shared by Phillip Ingebo, president of Concor Computer Corp., a software company. "The days when you can place one ad in Byte magazine and get started are gone."

The race for capital to compete in the business is already underway. Both Lotus and BPI Systems have gone public — and others at the top of the software league are soon to follow. Ashton-Tate has already filed for a public offering, and Micropro International is considering it seriously. "It's not a small ballgame anymore," said Wayne Jennings, chief financial officer of Innovative Software, a small company in Overland Park, Kansas, which raised about \$4 million in a public offering last month.

In fact, the software business is expected to soar to \$11.7 billion in 1988 from \$2.2 billion this year, according to Future Computing, a Dallas market research company. Already the software business is approaching the size of the \$3.5-billion record business and the number of new software titles being issued now far exceeds the 2,630 new albums issued last year.

Indeed, there is so much software available that the largest company to emerge in the industry so far is not a software producer but a company that distributes the thousands of software products to thousands of software retailers. Softset Computer Products of Inglewood, California, started in 1980 by two Glisport employees in their spare time, will have revenue of \$80 million this year, up from \$35 million last year, according to its chairman, David S. Wagnon. Softset screens 400 new programs a month and usually elects to carry only 10 to 12 of them.

The explosive growth in software

— from an infant industry to adolescence in less than five years — has, of course, been generated by a parallel explosion in the computer hardware industry. Personal computers first appeared in the mid-70s. At the end of 1982, there were more than 5 million of those computers, priced between \$50 and \$10,000, in the homes and offices of the United States — and no slowdown in growth is expected.

While there will still be opportunities in the software business, the intensification of competition means companies must pick their targets carefully and avoid mistakes. "It's not like there are no windows of opportunity," said Mr. Kapur of Lotus. "It's like a fun-house, with windows opening and closing with tremendous rapidity."

There are some 6,000 software publishers, according to Mr. Stockett, yet fewer than 100 of them have more than 25 employees.

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BAHRAIN	23.42.41	HELSINKI	64.02.50	NEW YORK	286.08.44
BARCELONA	302.22.82	HONG KONG	29.38.16	OSLO	41.61.15
BERLIN (WEST)	218.80.13	LONDON	89.30.98	PARIS	(06)79.0800
BRUSSELS	218.28.68	LONDON	628.37.51	SINGAPORE	338.0800
COPENHAGEN	04.30.08	LUSAN	56.06.29	STOCKHOLM	21.77.27
DUBLIN	12.61.25	LUXEMBOURG	48.45.58	STUTTGART	22.03.13
FRANKFURT	28.20.90	MADRID	402.61.21	VIENNA	54.11.06
GENEVA	28.17.77	MILAN	345.23.69	ZURICH	302.08.12

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Robertson, Colman & Stephens Thomson McKinnon Securities Inc.
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Daiwa Securities America Inc. Dominion Securities Ames Inc. F. Eberstadt & Co., Inc.
EuroPartners Securities Corporation Robert Fleming Kleinwort, Benson
Ladenburg, Thalmann & Co. Inc. Moseley, Hallgarten, Estabrook & Weeden Inc.
The Nikko Securities Co. Nomura Securities International, Inc. Rothschild Inc.
Sogen Securities Corporation Tucker, Anthony & R. L. Day, Inc.
S. G. Warburg & Co. Ltd. Yamaichi International (America), Inc.

Oil and Money in the Eighties

AN INTERNATIONAL HERALD TRIBUNE/ OIL DAILY CONFERENCE
PARK LANE HOTEL, LONDON, DECEMBER 8 AND 9, 1983

"The global impact of shifting markets" will be the theme of the fourth annual International Herald Tribune/Oil Daily conference on "Oil and Money in the Eighties."

The conference will focus this year on what caused the radical shift in the oil market in recent years and what the implications of the turnaround are for the future.

DECEMBER 8

KEYNOTE ADDRESS
Donald Hodel, United States Secretary of Energy
U.S. ENERGY: THE NEXT TEN YEARS
John Lichtblau, Executive Director, Petroleum Industry Research Foundation, New York
STRUCTURAL VERSUS CYCLICAL CHANGE IN THE OIL MARKET
Moderator: Herman Franssen, Chief Economist, International Energy Agency, Paris
Robert Mabro, Director, Oxford Institute for Energy Studies
Arie de Geus, Coordinator of Planning, Shell International Petroleum Company Limited, London
William Finger, Coordinator of Energy Analysis, Exxon Company, Houston
ARAB BANKING'S ROLE IN OPEC COUNTRIES' INVESTMENT STRATEGIES
Abdulla A. Saud, President and Chief Executive, Arab Banking Corporation, Bahrain
CORPORATE THINKING ON THE ENERGY INVESTMENT OUTLOOK
Robert Anderson, Chairman, Atlantic Richfield Corporation, Los Angeles
François Didier, Senior Vice President, Strategic Planning, Elf Aquitaine, Paris
NORTH SEA INVESTMENT OUTLOOK
G. Malcolm Ford, Joint Managing Director, Britoil Plc, Glasgow

DECEMBER 9

THE ROLE OF THE WORLD BANK IN WORLD ENERGY DEVELOPMENT IN THE EIGHTIES
Yves Ravasi, Vice-President, Energy, The World Bank, Washington, D.C.
THE OIL FUTURES MARKET
Robin Woodhead, Chairman, International Petroleum Exchange, London, and Managing Director, Premier Man Group
Karlsson Wahlman, Head of the Oil Committee, Chicago Board of Trade
THE SINO-SOVIET OIL OUTLOOK
Professor Arthur Meyerhoff, Independent Oil Producer and Geologist
LIVING WITH OPEC
James Akins, Former U.S. Ambassador to Saudi Arabia
OPEC IN THE EIGHTIES
Alvaro Parra, Director, Petroleos de Venezuela (U.V.), Caracas
THE IMPACT OF DOWNSTREAM INVESTMENT AND PRODUCT SALES IN EUROPE BY THE PRODUCING COUNTRIES
Moderator: Nicolas G. Voth, Oil Consultant, London and The Hague
Erwin Spuller, Managing Director, Fretail, Paris
John Maitley, Chairman, The British Oil Co. Plc, London
Charles de Bièvre, Director, Banque Arabe Internationale d'Investissements, Paris

CONFERENCE REGISTRATION FORM
Please enroll the following participant for the Energy conference, December 8 and 9, 1983.
☐ Check enclosed ☐ Please invoice
Surname 25-10-83
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Position
Company
Address
City/Country
Telephone Telex

CONFERENCE LOCATION
Park Lane Hotel, Piccadilly, London W1Y 8BX, England.
Tel. (44-1) 499 6321. Telex: 21533. Contact: Ms. Henderson.
A block of rooms has been reserved for conference participants. For further information, please contact the hotel directly.

Mesa Group Lifts Gulf Oil Stake

States. The company also provides management, pharmacy, cardiopulmonary and physical-therapy services to the hospital industry on a contract basis.

American Medical owns, operates and develops hospitals and provides health-care services in more than 500 cities worldwide.

In the year ended Aug. 31, American Medical earned \$101.5 million, or \$2.05 a share, on revenue of \$1.68 billion. In 1982, LifeMark had net income of \$27.8 million, or \$2.47 a share, on revenue of \$483

Apple Says Net Plunged 73% in Third Quarter

and several strategic decisions which were made to strengthen the company" resulted in the earnings decline.

Meanwhile, Prime Computer, based in Natick, Massachusetts, and a leading maker of minicomputers, said third-quarter profit fell to \$7.57 million, or 16 cents a share, from \$11.2 million, or 25 cents a share, a year earlier. Revenue rose to \$131.2 million from \$109.2 million.

For the nine months, Prime's

Oct 31

[illegible]

By Audrey Stuart

phase out the cash market by the end of March 1984 and unify prices at the forward market level.

Another element of the plan, this one designed to attract smaller investors to the market, will begin in January. It will reduce the minimum number of shares that investors must buy or sell, from lots worth 7,000 francs to lots of about 5,000 francs for most shares and about 4,000 francs for the 25 most traded shares.


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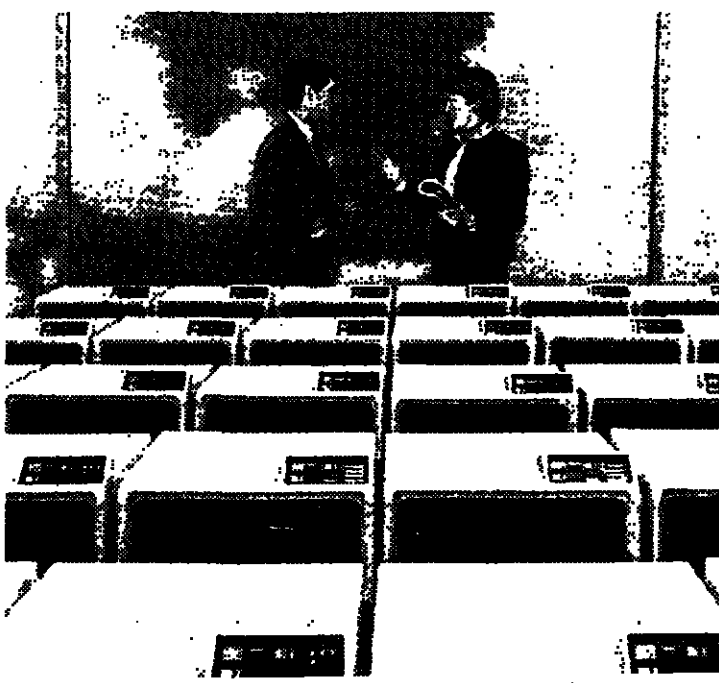
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SPORTS

Race Within a Race

By Dave Anderson
New York Times Staff

NEW YORK — For more than two hours on Sunday, the umbrellas had been up near the finish line. Under the red-white-and-blue New York Marathon banner, two men held a thick white tape. When policemen on motorcycles rumbled along the Central Park roadway, the people knew the winners would soon arrive.

Moments later, Rod Dixon of New Zealand, wet from the rain and sweat, appeared and the applause began. After breaking the tape, Dixon raised his arms high and then knelt, as if in prayer, before getting to his feet, wobbling slightly. Nine seconds later, Geoff Smith of England stumbled across the finish line and toppled to the pavement. Almost instantly, he was up and hanging onto the shoulders of three men who had rushed to help him.

One by one, the other leaders were crossing the finish line, some in a stagger, some smoothly. But behind them was the race within the race — the attempt to qualify in May for the trials that will determine the three men and three women who will represent the United States in the marathons (the first for women) at the 1984 Summer Olympics.

Beginning with the Boston Marathon last April through next year's Boston race, an American must better a specific time to qualify for the Olympic trials. For men (who will attempt to qualify at Buffalo on May 26), that time is 2 hours 19 minutes 51 seconds; for women (who will run in Olympia, Washington, on May 26), it is 2:51:16.

In 1980, one of the smallest world-class marathoners, 5-foot-8-inch Tony Sandoval, won the Olympic trials in 2:10:19. His time still stands as the ninth best by an American; it also turned out to be faster than the winning time at the 1980 Games in Moscow, which Sandoval missed because of the boycott.

Until Sunday he had not yet qualified for the 1984 trials, but he ran 2:15:21, finishing 18th.

"I know I'd qualified, I saw the time up there on the clocks on the finish line," he said a few minutes later. "My fidelity was there, but I've got to build up my cardiovascular supply."

"Spoken like the physician he is — an internal medicine intern at the University of Colorado. Huddled in one of those aluminum cots that made the marathoners resemble walking candy wrappers, 29-year-old Sandoval stood under a dripping tree with his wife and their little daughter.

"Not running at Moscow was a disappointment," he said. "I didn't run many marathons for a couple of years because I was too busy with my medical studies. And now I've got to make the team all over again. It's nice to know I've qualified. But between now and the trials in Buffalo, I've got to build my cardiovascular supply," he repeated. "Build and build."

By now, dozens of marathoners had finished. With their pectoral medals hanging from ribbons, they made their way toward the buses, where little plastic bags of food awaited them. But every so often, a finisher could be seen on a stretcher.

Walking slowly was 24-year-old Julie Shea from Raleigh, North Carolina, wearing tiny pearl earrings and holding a red rose against her chest. Two years ago, she was the third woman finisher, but last year an ailing leg forced her to stop after about seven miles.

"I think it was downtown Brooklyn somewhere," she recalled. "I remember I went into a damp, dark garage with a big white sign where some college kids gave me a sweat suit to put on and fed me breakfast. I'll never forget how kind they were."

"This year she qualified for the Olympic trials with a 2:39:02, finishing 12th among the women, 37th overall.

"Now that I've qualified," she said, "as long as I stay healthy, I think I can make the Olympic team."

Shea, a graduate of North Carolina State, had been voted the Atlantic Coast Conference athlete of the year in 1980 and 1981, ahead of first Nancy Lieberman, the all-American basketball player at Old Dominion, and then Ralph Sampson, the all-American basketball player at Virginia. "At the 1980 Association for Intercollegiate Athletics for Women championship at Eugene, Oregon, she swept the 3,000-, 5,000- and 10,000-meter runs, an unprecedented triple.

About three dozen men and two dozen other women qualified for the Olympic trials Sunday; a total of about 300 men and 200 women are expected to run in each marathon. The first three finishers (and the fourth as an alternate) will be among the throng of marathoners who will leave the starting line in the Los Angeles Coliseum. The women's marathon will be run on the first day of track and field competition; the men's, as usual, will be on the last day.

Grete Waitz of Norway, now a five-time women's winner in New York, and American Alberto Salazar, the world-best holder and three-time New York champion who didn't compete Sunday, will surely be the favorites. But Sandoval and Shea took their first strides toward Los Angeles by winning their races within a race.

SPORTS BRIEFS

3 World Lift Records Reported

MOSCOW (AP) — Weightlifters from the Soviet Union and Bulgaria set three world records Sunday in the 123-pound (56-kilo) class at the World and European Weightlifting Championships. These reports:

Oksen Mizoyan of the Soviet Union jerked 363 pounds, bettering the record of 353.1 set by Andreas Lutz of East Germany. Mizoyan won the overall division with a total of 643.5 pounds, breaking his own mark of 622.5 set earlier this year.

Bulgarian Naim Sulaimanov's total of 638 pounds included a record-setting snatch of 286, bettering by 4.4 pounds the record set by Wu Shunde of China.

Teltscher Beats Gomez in Tokyo

TOKYO (AP) — Eliot Teltscher of the United States beat top-seeded Andres Gomez of Ecuador, 7-5, 3-6, 6-1, on Monday to win the men's singles final at the Japan Open tennis tournament.

Etsuko Inoue of Japan downed American Shelly Solomon, 7-5, 6-1, for the women's doubles.

The men's doubles final, an all-U.S. affair, went to Sammy Giammiva and Steve Meister, 6-4, 6-7, 7-6, over brothers Tom and Tim Gullikson. Australians Pam Whytcross and Christine O'Neill won the women's doubles by defeating Americans Helena Manset and Micki Schilling, 6-3, 6-5.

Stewart Wins Disney Golf by 2

LAKE BUENA VISTA, Florida (AP) — Payne Stewart shot a 5-67, 70 Sunday to finish at 19-under 269 and win the Walt Disney World Classic golf tournament by two strokes.

Nick Faldo of England, with a 66, tied Mark McCumber (a closing 67) or second at 271. Scott Hoch, who shared the third-round lead with Stewart, finished 70/272.

La Porte to Defend WBC Crown

MILAN (AP) — World Boxing Council featherweight champion Juan La Porte of Puerto Rico will defend against Italian Lucio Stecca in Rome on Monday in December. Stecca's manager, Umberto Branchini, announced late Sunday.

Transition

BASKETBALL — National Basketball Association. PORTLAND — Stated Clyde Drexler, forward, to a multiyear contract.

FOOTBALL — National Football League. LEAGUE — Announced that 27 players from N.Y. Jets and L.A. Rams have been fined a total of \$15,750 for taking part in an off-the-field party at a home last Sept. 25.

DEVELOPMENT — Activated Rob Lyle, running back, and Ron Johnson, defensive end, from the injured reserve list. Picked up the injured reserve list. Picked up the injured reserve list. Picked up the injured reserve list.

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Gary Lewis comes down to earth after unsuccessfully trying to block Benny Ricardo's 44-yard second-period field goal Sunday in Green Bay, Wisconsin. Ricardo also kicked a 32-yarder in overtime to beat the Packers for Minnesota, 20-17.

Malone, 76ers Start Quest for 2d Straight NBA Title

By Sam Goldaper
New York Times Staff

NEW YORK — If the 76ers stay healthy and if Moses Malone continues to be the same dominant force, Philadelphia is favored to become the first team since the 1968-69 Boston Celtics to win successive National Basketball Association championships.

Following the arrival of Larry Bird for the 1979-80 season, Boston won three straight divisional titles. Philadelphia snapped the string after the acquisition of Malone, who gave championship form to a collection of all-stars.

On Friday night, the NBA may start its 38th season without its regular referees, who are without a contract and have not worked during the exhibition season. The league and the officials continue their negotiations.

A preview of the NBA's Eastern Conference:

ATLANTIC DIVISION

With the 6-10 Malone leading the league in rebounds last year (15.3 per game) and finishing fifth in scoring (24.5), the Philadelphia 76ers won the division title with ease (65-17) and set an NBA playoff record of 12-1.

Malone's strong inside game made the fast break more devastating and the swarming defense more effective. Free agent Marc Lavrovich was a pleasant surprise at power forward, blocking out for Malone. Bobby Jones remains Mr. Defense and Julius Erving Mr. Excitement.

With Maurice Cheeks developing into a top playmaker, Andrew Toney fast becoming one of the league's outstanding offensive forces and with Clint Richardson and Franklin Edwards, the 76er backcourt is young and talented.

The Boston Celtics' big, strong and talented front line made possible the trade to Phoenix of Rick Robey for Dennis Johnson, bringing help to a faltering backcourt. The problems focused on aging Nate Archibald, now with Milwaukee; and Quinn Buckner never fit in. Danny Ainge's scoring improved and Gerald Henderson has great quickness but has trouble hitting from the outside.

If K.C. Jones can keep Johnson happy, he will lead toughness, rebounding, passing and scoring, some of the missing ingredients.

With a settled backcourt, the Celtics would improve. Bird's scoring, passing and overall game is without equal among forwards. Kevin McHale, the league's best shot-blocking forward, can also score and rebound, as can Robert Parish, the 7-foot center, and Cedric Maxwell.

Cosch Hubie Brown wants the New York Knicks running, and that will require better rebounding. Ray Williams and Darryl Walker, noted for their quickness, will rebound from the guard position. But Truck Robinson will need to contribute the way he did in the second half of last season, when the Knicks went 30-12.

Bill Cartwright can score, and Marvin Webster is noted for defense, but both centers will need to rebound better. Bernard King (21.5 points a game), with strong inside moves, is the main man.

Cosch Sam Albrecht comes to the

NHL Standings

WALDES CONFERENCE

Particular Division

Team	W	L	T	Pts	GF	GA
N.Y. Rangers	9	1	0	18	42	26
Philadelphia	4	2	1	13	42	25
N.Y. Islanders	4	5	0	8	27	40
Quebec	4	4	1	9	29	29
Pittsburgh	1	7	0	2	18	37
Washington	1	7	0	2	18	37

Team	W	L	T	Pts	GF	GA
Quebec	4	2	0	12	31	24
Boston	3	2	1	11	37	24
Buffalo	3	3	1	10	34	31
Montreal	4	4	0	8	40	34
Hartford	3	3	1	7	23	25

Team	W	L	T	Pts	GF	GA
St. Louis	4	2	0	12	32	24
Chicago	4	3	0	12	39	34
Toronto	4	3	0	12	39	34
Detroit	4	3	0	12	39	34
Minnesota	2	5	1	5	33	43

Team	W	L	T	Pts	GF	GA
Edmonton	7	1	1	15	51	39
Vancouver	7	1	1	14	47	47
Los Angeles	2	4	2	6	21	31
Calgary	2	4	2	6	21	31
Winnipeg	1	5	2	4	25	41

Team	W	L	T	Pts	GF	GA
Philadelphia	10	2	0	20	61	33
San Jose	9	3	0	18	50	37
Los Angeles	8	4	0	16	44	37
San Jose	7	5	0	14	44	37
San Jose	6	6	0	12	44	37

Team	W	L	T	Pts	GF	GA
Philadelphia	10	2	0	20	61	33
San Jose	9	3	0	18	50	37
Los Angeles	8	4	0	16	44	37
San Jose	7	5	0	14	44	37
San Jose	6	6	0	12	44	37

Team	W	L	T	Pts	GF	GA
Philadelphia	10	2	0	20	61	33
San Jose	9	3	0	18	50	37
Los Angeles	8	4	0	16	44	37
San Jose	7	5	0	14	44	37
San Jose	6	6	0	12	44	37

Team	W	L	T	Pts	GF	GA
Philadelphia	10	2	0	20	61	33
San Jose	9	3	0	18	50	37
Los Angeles	8	4	0	16	44	37
San Jose	7	5	0	14	44	37
San Jose	6	6	0	12	44	37

Team	W	L	T	Pts	GF	GA
Philadelphia	10	2	0	20	61	33
San Jose	9	3	0	18	50	37
Los Angeles	8	4	0	16	44	37
San Jose	7	5	0	14	44	37
San Jose	6	6	0	12	44	37

Team	W	L	T	Pts	GF	GA
Philadelphia	10	2	0	20	61	33
San Jose	9	3	0	18	50	37
Los Angeles	8	4	0	16	44	37
San Jose	7	5	0	14	44	37
San Jose	6	6	0	12	44	37

Team	W	L	T	Pts	GF	GA
Philadelphia	10	2	0	20	61	33
San Jose	9	3	0	18	50	37
Los Angeles	8	4	0	16	44	37
San Jose	7	5	0	14	44	37
San Jose	6	6	0	12	44	37

Team	W	L	T	Pts	GF	GA
Philadelphia	10	2	0	20	61	33
San Jose	9	3	0	18	50	37
Los Angeles	8	4	0	16	44	37
San Jose	7	5	0	14	44	37
San Jose	6	6	0	12	44	37

Team	W	L	T	Pts	GF	GA
Philadelphia	10	2	0	20	61	33
San Jose	9	3	0	18	50	37
Los Angeles	8	4	0	16	44	37
San Jose	7	5	0	14	44	37
San Jose	6	6	0	12	44	37

Team	W	L	T	Pts	GF	GA
Philadelphia	10	2	0	20	61	33
San Jose	9	3	0	18	50	37
Los Angeles	8	4	0	16	44	37
San Jose	7	5	0	14	44	37
San Jose	6	6	0	12	44	37

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Philadelphia	10	2	0	20	61	33
San Jose	9	3	0	18	50	37
Los Angeles	8	4	0	16	44	37
San Jose	7	5	0	14	44	37
San Jose	6	6	0	12	44	37

Team	W	L	T	Pts	GF	GA
Philadelphia	10	2	0	20		

22-1